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# **WATER SUPPLY OUTLOOK FOR MONTANA**

U. S. DEPT. OF AGRICULTURE  
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AUG 22 1967

and  
FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

CURRENT SERIAL RECORDS

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,  
and

MONTANA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the  
agencies named above in cooperation with Federal,  
State, and private organizations listed on the  
inside back cover of this report.

AS OF  
**MAY 1, 1967**

## TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

### PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83701
Montana	P. O. Box 855, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4001 Federal Building, Salt Lake City, Utah 84111
Washington	840 Bon Marche Bldg., Spokane, Washington 99206
Wyoming	P. O. Box 340, Casper, Wyoming 82602

### PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia



WATER SUPPLY OUTLOOK  
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS  
For  
MONTANA

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MONTANA WATER SUPPLY OUTLOOK  
May 1, 1967

\*  
\* \*  
\* Below average April streamflow and temperatures, \*  
\* and above average mountain precipitation combined \*  
\* for near maximum May 1 snow pack and large volume \*  
\* streamflow forecasts for May through September. \*  
\* \*  
\* \*

The mountain snow pack west of the Divide is generally highest to second highest of record in the Flathead, Kootenai and portions of the upper Clark Fork River drainages. These drainages have 140 to 150 percent average snow pack. In the Bitterroot River and lower Clark Fork drainages, May 1 measurements are about 20 percent above the 1948-62 average. Cool temperatures and good mountain snowfall during April combined to increase the amount of water stored in the snow pack even at the lower elevations.

East of the Divide the mountain snow pack is generally second largest to largest in the last 30 years. The combination of good mountain snowfall and below average temperatures during April increased the water stored in the snow pack at all elevations. Very few snow courses showed melt during April.

The May 1 snow pack in the Missouri River drainage is 145 to 175 percent average. In the Yellowstone drainage the snow pack is about 160 percent average.



The extension of the snow season will result in large volumes of water being produced from the mountain streams during the next few months.

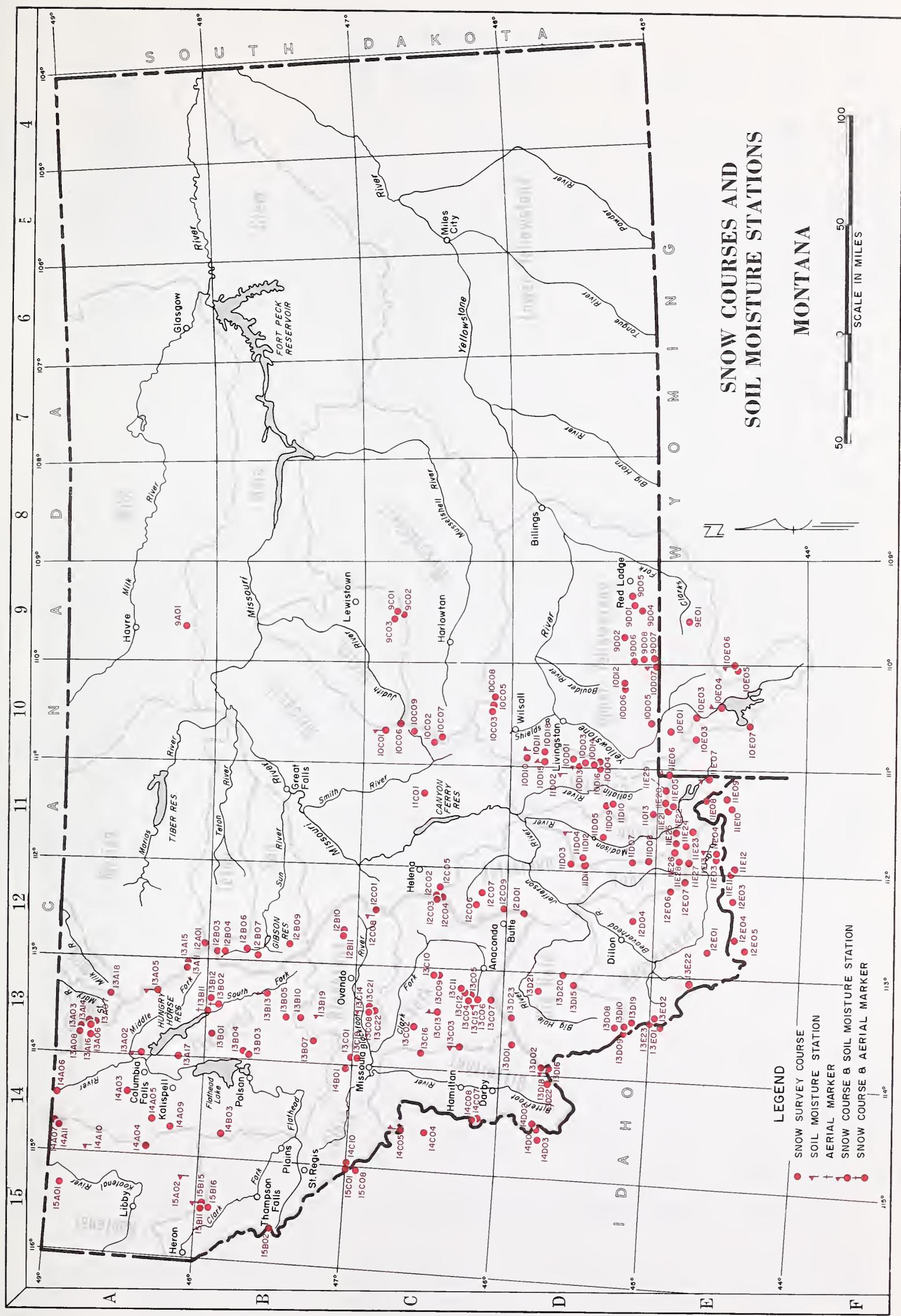
Streamflow for the May-September period is forecast third largest to the largest volume in the last 30 years on streams in the Kootenai and Flathead River drainages. Upper Clark Fork drainages should produce 10 to 30 percent above average amounts, while Bitterroot streams are in the near average to 10 percent above average range.

In the Yellowstone River drainage the May-September runoff is forecast 20 to 60 percent above the 1948-62 average. Headwaters of the Missouri River are forecast 120 to 170 percent average. Small streams with headwaters in the Belt, Castle and Snowy mountains are forecast to produce 170 to over 200 percent average and second largest to largest volume in the last 30 years.

On streams without reservoir regulation, streamflow will be high for a long time as the large snow pack melts. Many stream channels were enlarged in 1964 and 1965 and are now capable of carrying large flows within their channels. However, any prolonged rainfall during the main melt period will cause streams to leave their banks.

Storage in major reservoirs has been reduced below seasonal levels to accommodate the large volumes predicted.





# INDEX to MONTANA SNOW COURSES and SOIL MOISTURE STATIONS

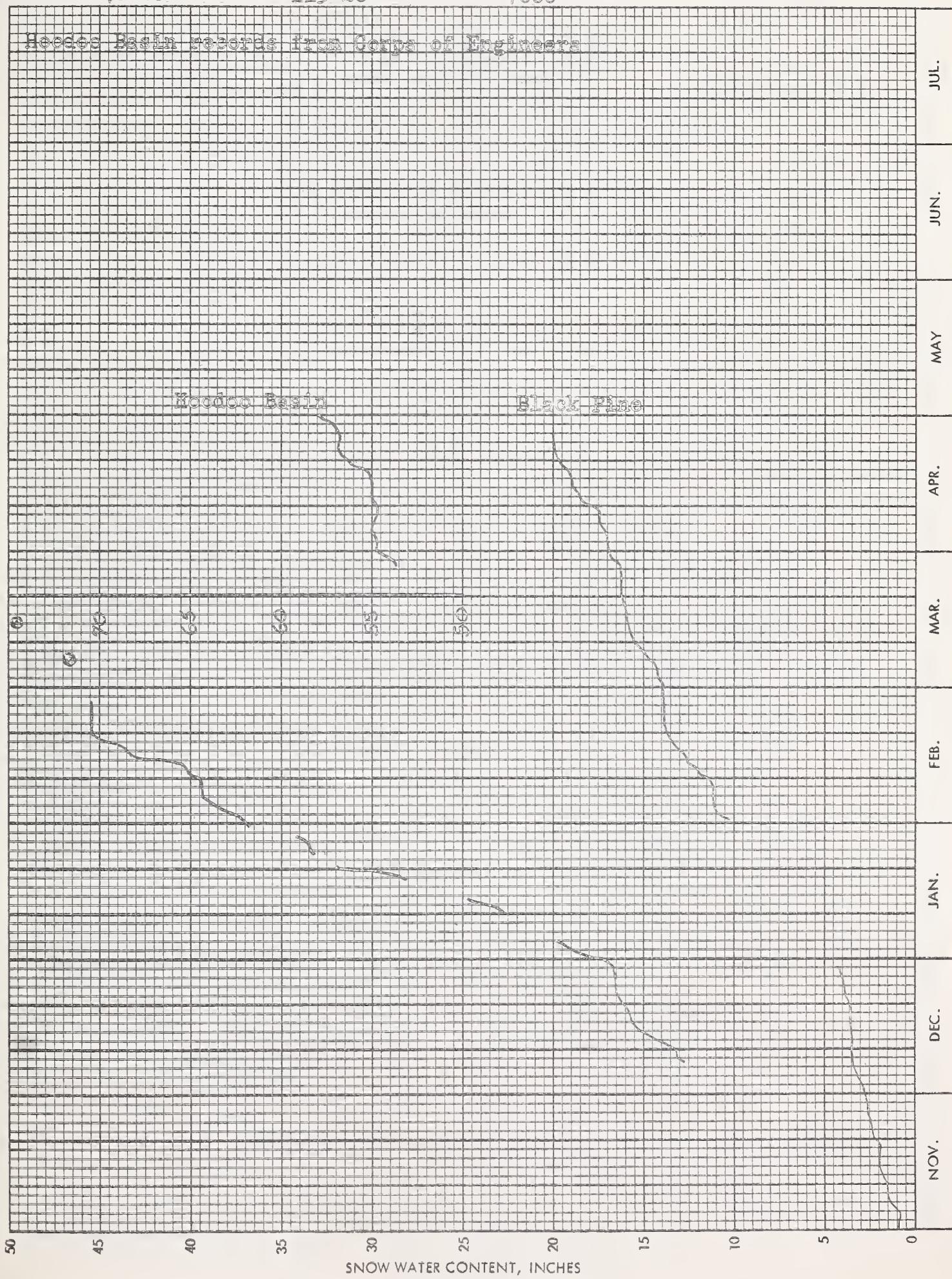
SNOW COURSES										SOIL MOISTURE STATIONS									
Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Began	Measuring Dates <u>By 2/</u>	Mes.	By <u>2/</u>	Drainage Basin & Course Name	Number	Elev.	Sec.	Top.	Range	Record Began	Measuring Dates <u>By 2/</u>	Mes.	By <u>2/</u>
<b>COLUMBIA RIVER BASIN</b>																			
KOOTENAI RIVER	15B11	5500	36	26N	31W	1956	3 1/4 - 5 1/2	2		RUBY RIVER	11D08	8600	28	9S	2W	1963	3 1/4 - 5	1	
Baree Creek	15B16	5500	31	26N	35W	1965	3 1/4 - 5 1/2	2		Clover Meadow Divide Notch	12E07	7900	14	12S	4W	1963	3 1/4 - 5	1	
Baree Mtn.	15B15	5300	5	25N	35W	1965	3 1/4 - 5 1/2	2		BIG HOLE RIVER	12E06	8500	18	11S	4W	1963	3 1/4 - 5	1	
Batture Trail	15A12	5000	12	30N	26W	1937	3 1/4 - 5 1/2	1,2		Abundance Lake	13D20	8800	7	3S	11W	1963	3 1/4 - 5	1	
Burnt Creek	14A11	5300	1	36N	25W	1965	3 1/4 - 5 1/2	6		Darkehorn Lake	13D19	8600	4	8S	16W	1963	3 1/4 - 5	1	
Burnt Creek	15A01	6000	4	36N	25W	1937	3 1/4 - 5 1/2	1,2		Foothorn Lake	13D21	8280	11	1S	13W	1963	3 1/4 - 5	1	
Red Mountain	15A07	5400	20	37N	25W	1937	3 1/4 - 5 1/2	6		Jahne Creek	13D21	8308	25	2N	15W	1967	3 1/4 - 5	1	
Wessel Divide										Paradise Creek	13D23	8450	3						
<b>FLATHEAD RIVER</b>																			
Brisco Peak	1A03	5150	11	24N	25W	1961	3 1/4 - 5	1,5		JEFFERSON RIVER	12E07	7300	8	5N	5W	1962	3 1/4 - 5	1	
Brisco Lake	1A11	5900	31	22N	18W	1961	3 1/4 - 5	6		Berry Meadow	12E09	7700	13	3N	7W	1966	3 1/4 - 5	4	
Big Creek	1A03	6750	7	22N	18W	1962	3 1/4 - 5	6		Copper Mountain Picnic Grounds	12E06	6500	21	5N	1W	1941	3 1/4 - 5	4	
Camp Misery	1A17	6300	30	28N	19W	1937	1,2,3 1/4 - 5	6		Pinestone Pass	12D01	7200	10	1N	7W	1938	1,2,3 1/4 - 5	4	
Deerfoot Mountain	13A02	5600	24	31N	19W	1937	1,2,3 1/4 - 5	6		Madison River	13D01	7300	21	8S	2W	1962	3 1/4 - 5	1	
Fatty Creek	1A02	5500	8	22N	18W	1962	3 1/4 - 5	6		Call Road	11D07	8050	21	8S	2W	1962	3 1/4 - 5	1	
Gritin Creek Divide	1A09	5500	11	28N	19W	1960	3 1/4 - 5	1,5		Four Mile	11D12	6900	5	4S	1W	1965	3 1/4 - 5	1	
Gunsight Lake	1A012	6300	35	26N	14W	1942	1,2,3 1/4 - 5	6		Freezeout Lake	11E03	7200	12S	1W	1965	3 1/4 - 5	6		
Hell Roaring Divide	1A03	5750	18	21N	13W	1951	1,2,3 1/4 - 5	6		Freezeout Mountain	11E26	8250	22	11S	3E	1934	1,2,3 1/4 - 5	6	
Holl Brook	1A013	4570	18	37N	14W	1954	3,4	6		Heigen Dam	11E05	6550	13	6S	1E	1951	3 1/4 - 5	3	
Kishibeon	1A06	3850	14	30N	24W	1937	3 1/4 - 5	1,2		Jack Creek	11D05	7500	13	6S	1E	1951	3 1/4 - 5	3	
Logan Creek	1A05	4300	34	26N	16W	1951	1,2,3 1/4 - 5	3		Lake Creek	11E22	8760	23	11S	2E	1967	3 1/4 - 5	6	
Marion Creek	1A05	4000	29	35N	17W	1957	3 1/4 - 5	6		Lake Mountain	11E28	7900	12	4S	3W	1965	3 1/4 - 5	1	
North Fork Jocko	1A07	6330	3	27N	15W	1941	1,2,3 1/4 - 5	6		Lover Twin	11E21	7900	12	4S	3W	1965	3 1/4 - 5	1	
Spotted Bear Mountain	1A02	7000	23	25N	15W	1948	1,2,3 1/4 - 5	1,5		Median Creek	11E23	7000	24	3S	1W	1965	3 1/4 - 5	6	
Tumtuk Lake	1A801	6100	9	25N	15W	1951	1,2,3 1/4 - 5	1		North Meadow	11D03	7500	24	3S	1W	1965	3 1/4 - 5	1	
Twin Creeks	1A801	3850	24	26N	16W	1945	1,2,3 1/4 - 5	1		Potomac Park	11E21	7510	33	10S	3E	1965	3 1/4 - 5	2	
Upper Holland Lake	1A05	7000	28	20N	15W	1948	1,2,3 1/4 - 5	1		Sentinel Creek	11E20	8300	17	10S	3E	1965	3 1/4 - 5	2	
<b>CLARK FORK RIVER</b>																			
Black Pine	1C13	7100	26	8N	13W	1959	Continuously	1		GALLATIN RIVER	11D14	7350	3	5S	6S	1963	1,2,3 1/4 - 5	6	
Copper Creek	1B11	5700	2	15N	9W	1962	3 1/4 - 5	1,2		Arch Falls	11D09	8150	9	6S	3E	1963	1,2,3 1/4 - 5	6	
Co-ter Mine	1B10	6500	2	15N	9W	1967	1,2,3 1/4 - 5	1,2		Bear Basin	11D10	7250	25	1N	6S	1965	Continuously	1	
Coyote Hill	1B10	4200	12	18N	16W	1947	3 1/4 - 5	1		Bridger Bowl	11E29	9000	18	10S	4E	1967	Continuously	1	
El Dorado Mine	1C09	7600	23	8N	12W	1949	3 1/4 - 5	1		Carrot Basin	10D04	8100	12	4S	6S	1995	1,2,3 1/4 - 5	6	
Fred Burr Pass	1C011	8000	12	8N	12W	1957	3 1/4 - 5	1		Devils Slide	11D03	6000	22	4S	6S	1996	Continuously	1	
Gold Creek Lake	1C10	4800	11	27W	17W	1965	3 1/4 - 5	1,2		Hood Meadow	10D03	6000	22	4S	6S	1995	1,2,3 1/4 - 5	6	
Reed Lake Trail	1C010	6000	17	14N	27W	1965	3 1/4 - 5	1,2		Little Park	11D10	6860	10	12S	6E	1963	Continuously	1	
Hoodoo Basin	1C008	6000	16	14N	27W	1937	1,2,3 1/4 - 5	1,2		Maynard Creek	11D10	7400	22	6S	12E	1963	3 1/4 - 5	1	
Hoodoo Creek	1C001	5900	16	15N	13W	1936	2,3 1/4 - 5	4		New World	12D01	6000	24	1N	7E	1967	Continuously	1	
Intergard	1C004	6450	6	15N	13W	1951	1,2,3 1/4 - 5	8		Shaver Palls	11D16	8100	14	5S	6S	1966	Continuously	1	
Larchert Forest No. 3	1C221	5450	19	13N	14W	1951	1,2,3 1/4 - 5	8		Stony Peak	11D13	8500	28	9S	12E	1963	Continuously	1	
Larchert Forest No. 4	1C222	4650	23	13N	15W	1951	1,2,3 1/4 - 5	8		Twenty-one Mile	11E07	6700	34	1S	12E	1934	Continuously	1	
Pad Libano	1C12	7100	22	6N	13W	1958	3 1/4 - 5	1		West Yellowstone	11E06	7510	1						
Slide Rock Mountain	1C022	7100	35	10N	16W	1936	2,3 1/4 - 5	4		YACHT CREEK	11C01	7950	1						
Southern Cross	1C018	6500	8	5N	14W	1936	2,3 1/4 - 5	4		YACHT CREEK	11C01	6200	23	8N	12E	1936	1,2,3 1/4 - 5	6	
Spring Gulch	1C018	6000	12	12N	17W	1961	1,2,3 1/4 - 5	8		ZEPHYR CREEK	11C01	8000	19	11S	12E	1938	3 1/4 - 5	1	
Star Lake	1C017	7700	19	12N	17W	1939	1,2,3 1/4 - 5	8		Bigshopper	11C02	7000	19	9N	8E	1963	3 1/4 - 5	1	
Stuart Mill	1C006	6500	19	5N	13W	1936	2,3 1/4 - 5	4		Kings Hill	11C01	9000	12S	13N	8E	1934	3 1/4 - 5	1	
Stuart Mountain	1C001	7200	6	12N	18W	1936	1,2,3 1/4 - 5	6		Rocky Bay	11C01	5200	15	28N	16E	1934	3 1/4 - 5	1	
TV Mountain	1C001	6500	33	15N	19W	1956	1,2,3 1/4 - 5	6		Sample Pass	12C01	6600	16	13N	7W	1934	1,2,3 1/4 - 5	7	
<b>BITTERROOT RIVER</b>																			
Antrose	1C16	6420	28	9N	18W	1950	3 1/4 - 5	1		Temple Mill	12C01	6800	4	27N	1W	1964	3 1/4 - 5	2	
East Fork R.S.	1D02	5400	5	4N	23W	1960	3 1/4 - 5	1		Ten Mile Middle	12C03	6800	13	26N	10W	1948	3 1/4 - 5	3	
Gibbons Pass	1C007	5920	4	25N	15W	1937	3 1/4 - 5	1		Ten Mile Upper	12B03	8000	19	8N	5W	1935	1,2,3 1/4 - 5	3	
No. 1 Perce Camp	1D001	6570	25	1S	24W	1937	3 1/4 - 5	1		WOLF CREEK	12B04	5700	25	25N	10W	1949	3 1/4 - 5	2	
Saddle Mountain	1C022	5950	25	23N	19W	1965	3 1/4 - 5	1</td											

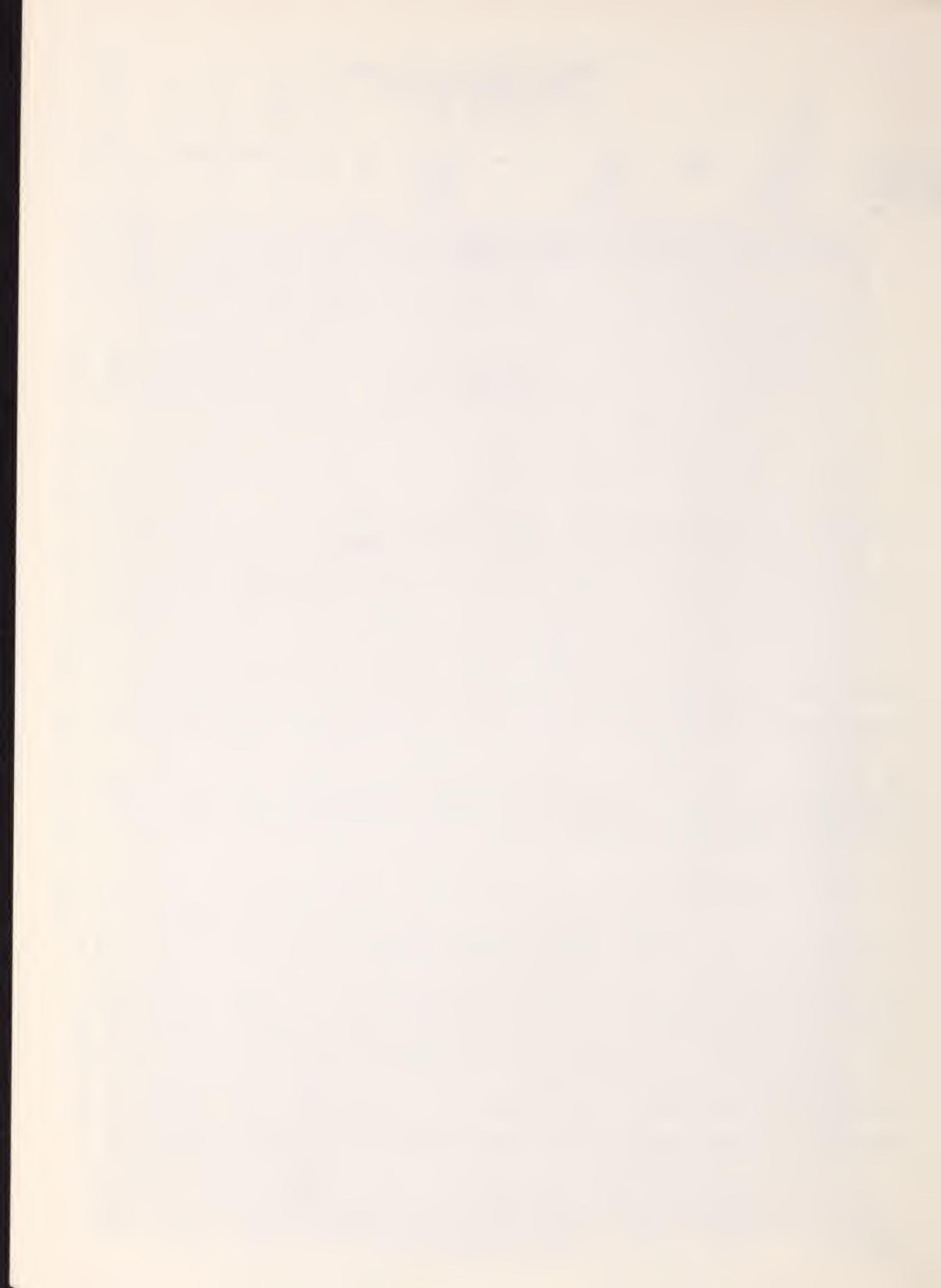
**HOODOO BASIN & BLACK PINE  
SNOW PILLOW DATA**

AS OF MAY 1, 1967

Hoodoo Basin	Sec. <u>17</u>	T. <u>14N</u>	R. <u>27W</u>	No. <u>15008</u>	Drainage: <u>Clark Fork</u>
Black Pine	1	26	8N	<u>15W</u>	<u>13013</u>
Hoodoo Basin	Lat. <u>46-59</u>	Long. <u>115-02</u>		Elev. <u>6000</u>	
Black Pine	46-26			<u>113-26</u>	<u>7000</u>

Hoodoo Basin records from Corps of Engineers



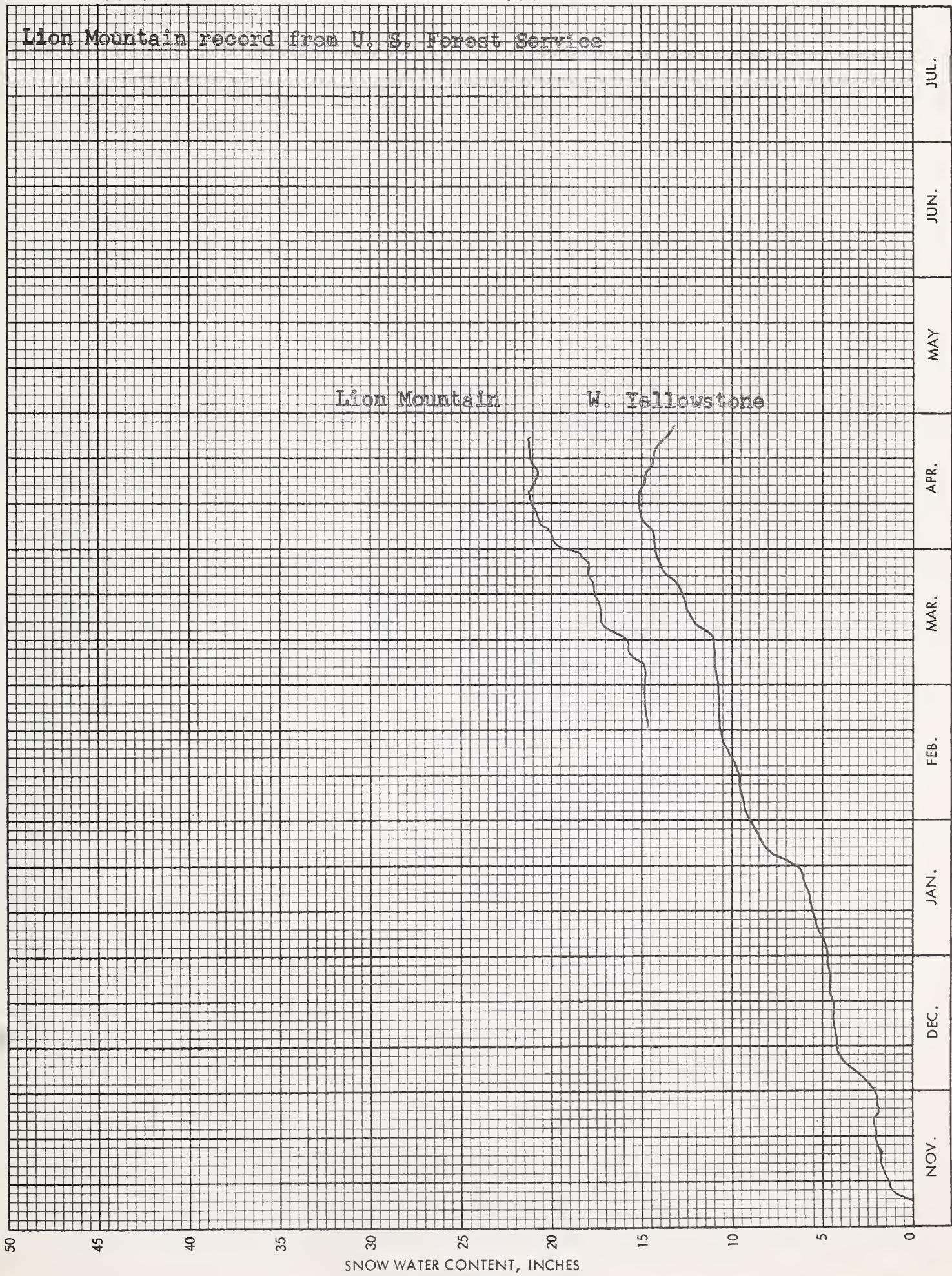


LION MOUNTAIN & W. YELLOWSTONE  
SNOW PILLOW DATA

AS OF MAY 1, 1967

Lion Mountain -	Sec. 23	T. 11S	R. 2W	No. 11E28	Drainage: Madison
W. Yellowstone -	34	13S	SE	11E07	
Lion Mountain -	Lat. 44-52	Long. 111-48		Elev. 8760	
W. Yellowstone -	44-40	111-06		6700	

Lion Mountain record from U. S. Forest Service



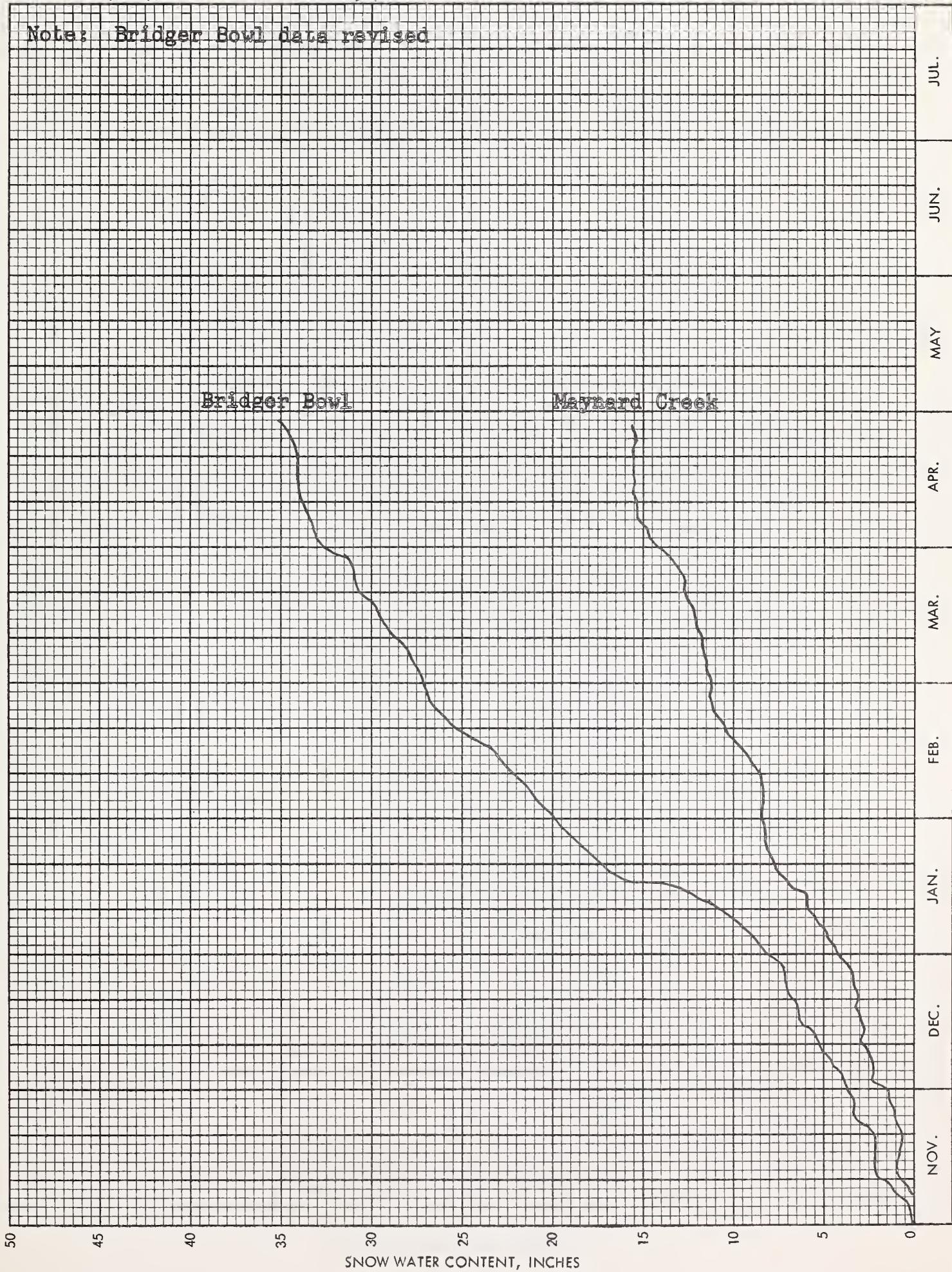


**BRIDGER BOWL & MAYNARD CREEK  
SNOW PILLOW DATA**

AS OF MAY 1, 1967

Bridger Bowl -	Sec. <u>25</u>	T. <u>1N</u>	R. <u>6E</u>	No. <u>10D15</u>	Drainage: <u>Gallatin</u>
Maynard Creek -	<u>19</u>	<u>1N</u>	<u>7E</u>	<u>10D18</u>	
Bridger Bowl -	<u>Lat. 45-48</u>		<u>Long. 110-55</u>	<u>Elev. 7250</u>	
Maynard Creek -	<u>45-49</u>		<u>110-54</u>	<u>6210</u>	

Note: Bridger Bowl data revised

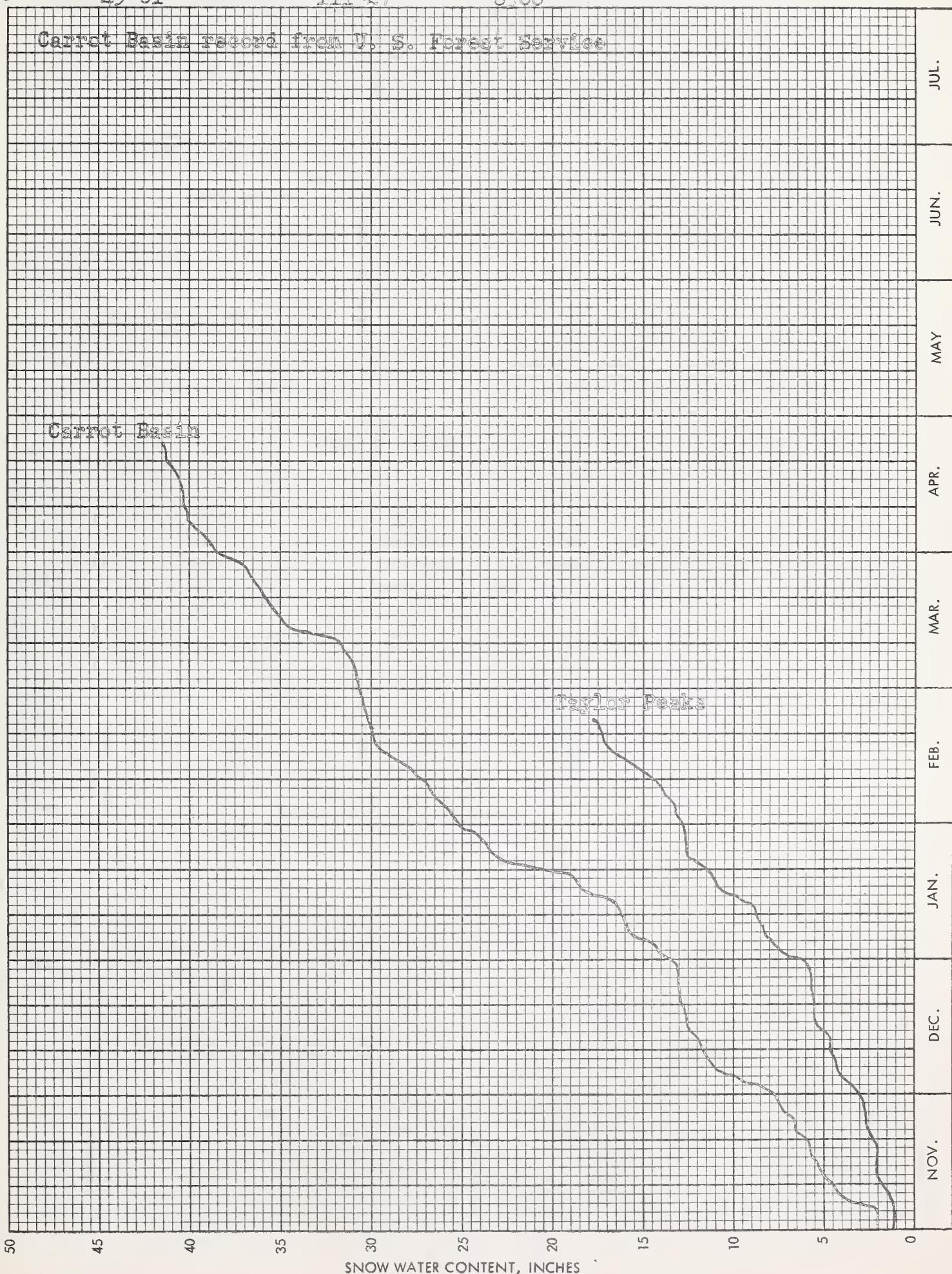


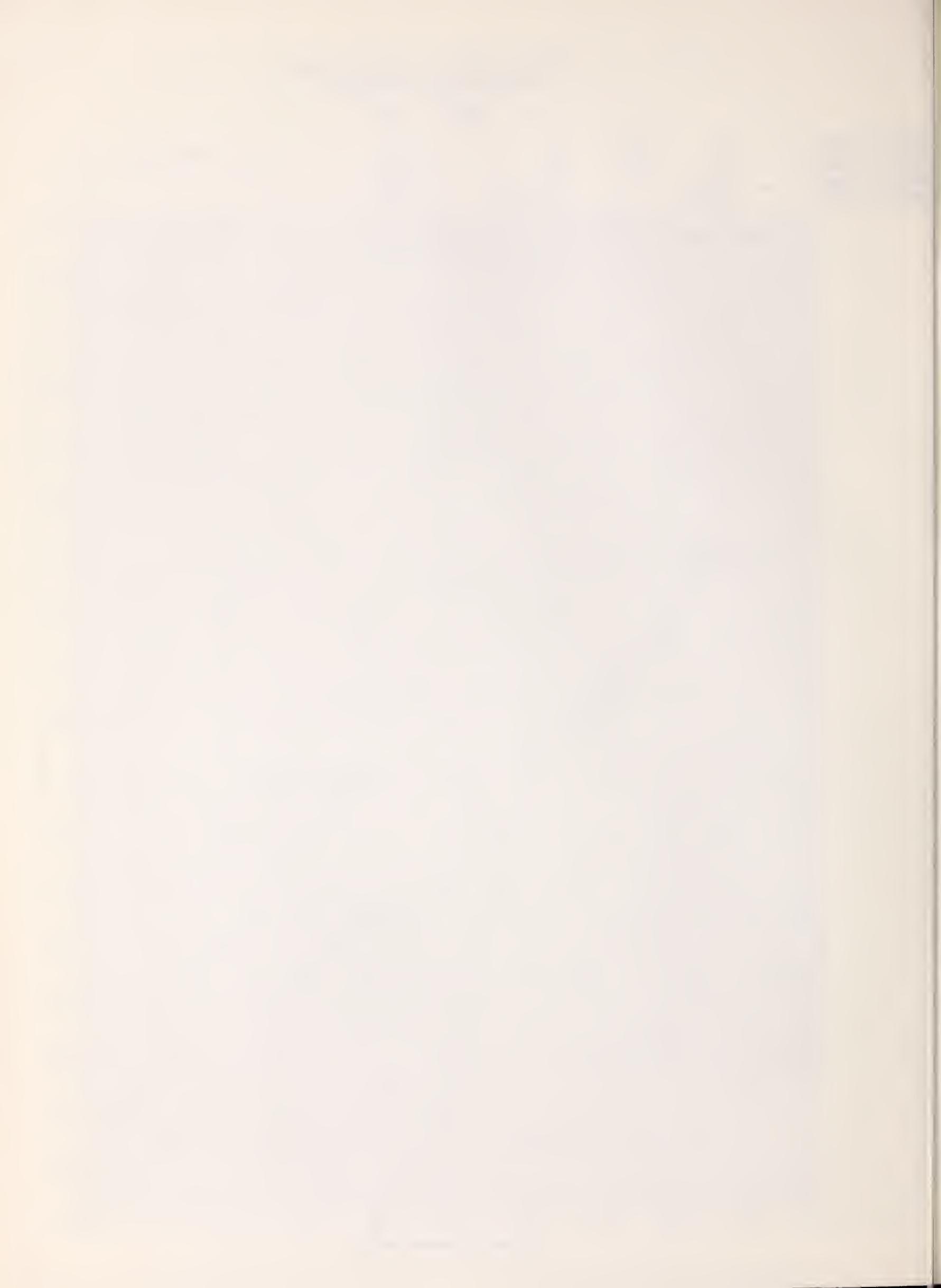


CARROT BASIN & TAYLOR PEAKS  
SNOW PILLOW DATA

AS OF MAY 1, 1967

Carrot Basin -	Sec. 18	T. 10S	R. 4E	No. 11E29	Drainage: Gallatin
Taylor Peaks -	26	9S	2E	11D13	
Carrot Basin -	Lat. 44-58	Long. 111-58		Elev. 9000	
Taylor Peaks	45-01		111-27	8500	

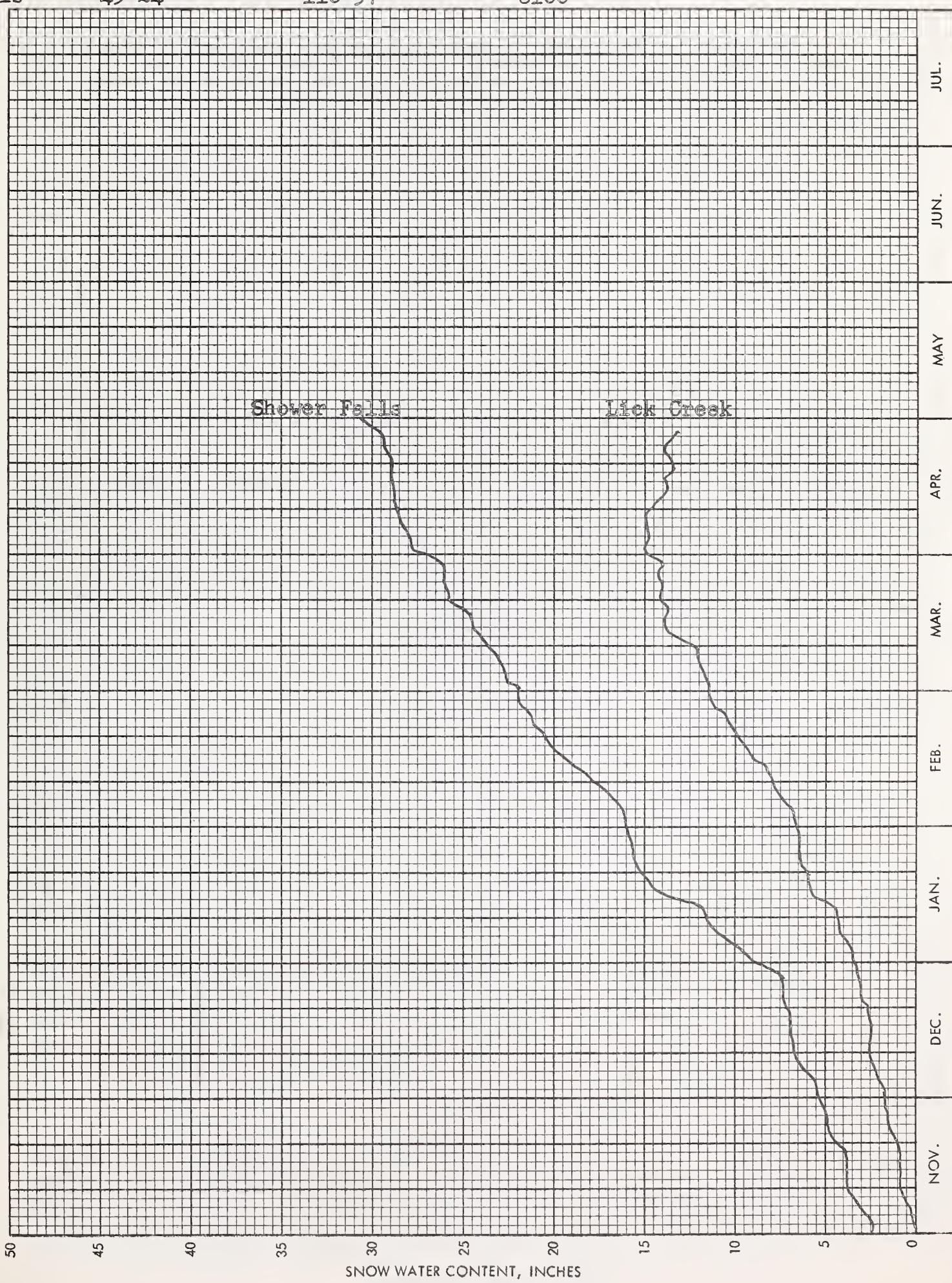




LICK CREEK & SHOWER FALLS  
SNOW PILLOW DATA

AS OF MAY 1, 1967

Lick Creek -	Sec. <u>10</u>	T. <u>4S</u>	R. <u>6E</u>	No. <u>10D13</u>	Drainage: <u>Gallatin</u>
Shower Falls-	<u>14</u>	<u>5S</u>	<u>6E</u>	<u>10D16</u>	
Lick Creek -	Lat. <u>45-30</u>	Long. <u>110-58</u>	Elev. <u>6860</u>		
Shower Falls-	<u>45-24</u>	<u>110-57</u>	<u>8100</u>		

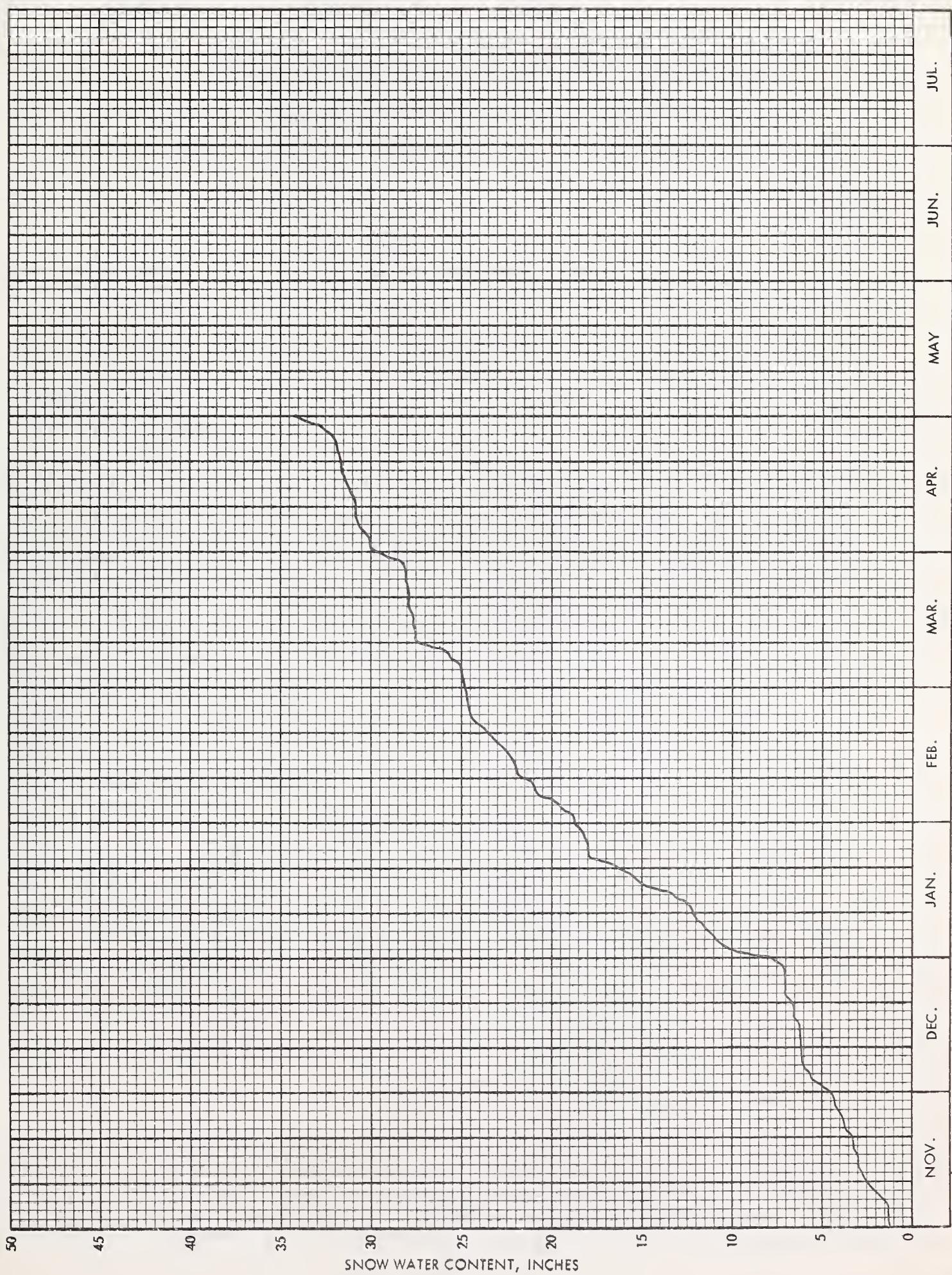




SPUR PARK  
SNOW PILLOW DATA

AS OF MAY 1, 1967

Sec. 20 T. 12N R. 9E No. 10C06 Drainage: Judith  
Lat. 46-47 Long. 110-37 Elev. 8000

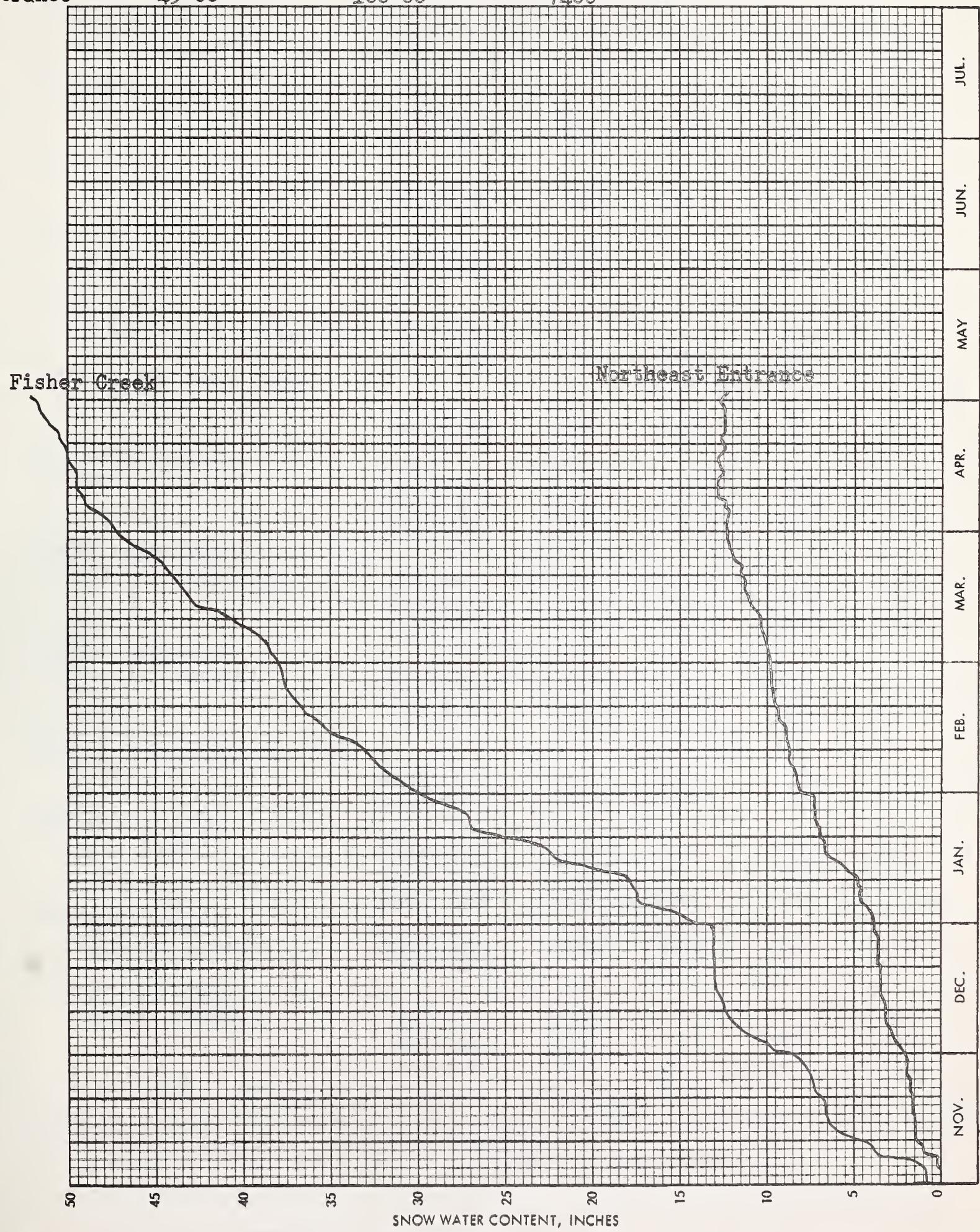


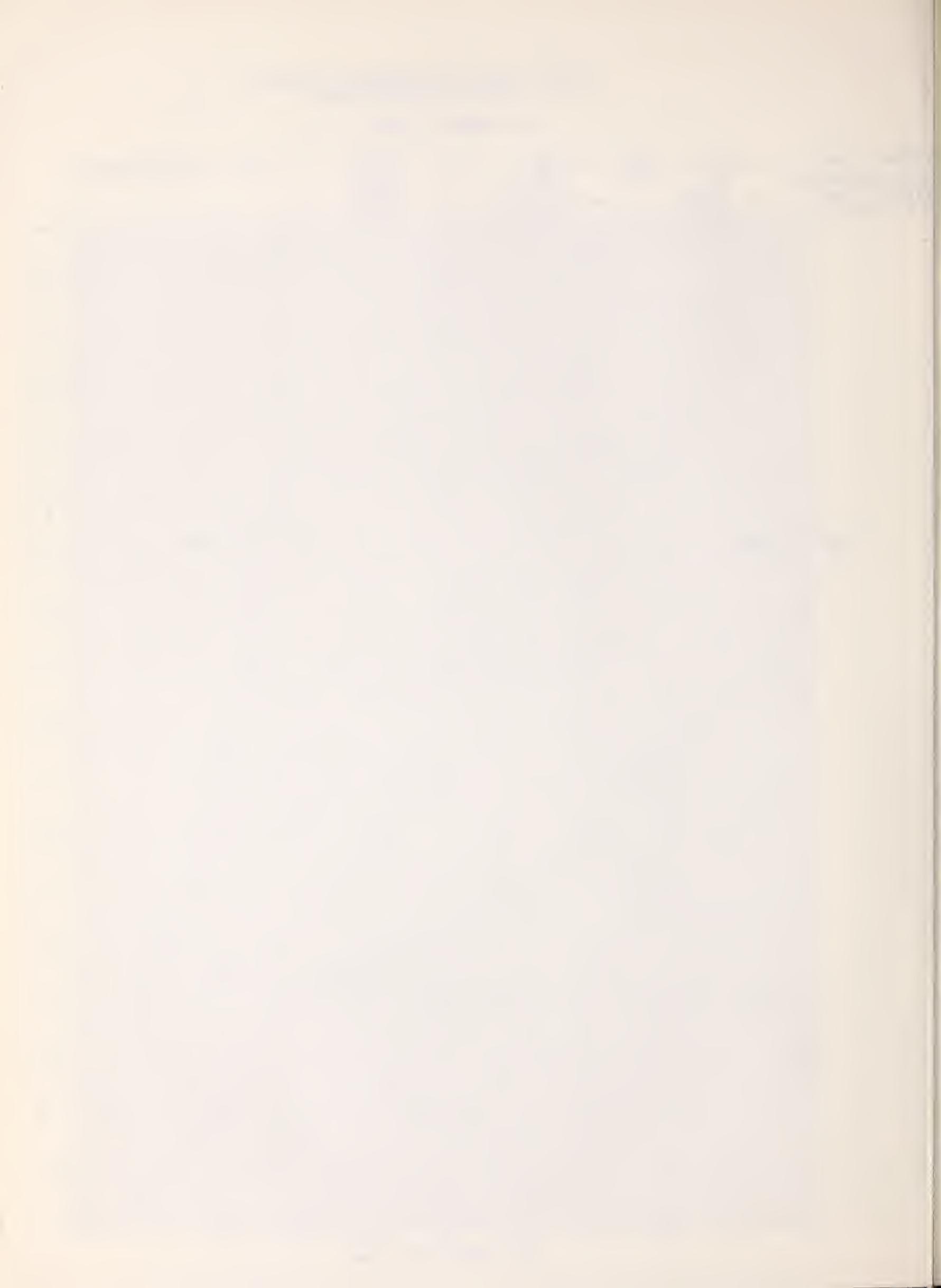


FISHER CREEK & NORTHEAST ENTRANCE  
SNOW PILLOW DATA

AS OF MAY 1, 1967

Fisher Creek -	Sec. <u>11</u>	T. <u>9S</u>	R. <u>14E</u>	No. <u>9D06</u>	Drainage: <u>Yellowstone</u>
N.E. Entrance -	33	9S	14E	10D07	
Fisher Creek -	Lat. <u>45-04</u>		Long. <u>109-57</u>	Elev. <u>9100</u>	
N.E. Entrance -	<u>45-00</u>		<u>100-00</u>	<u>7400</u>	





# WATER SUPPLY FORECASTS

AS OF MAY 1, 1967

(1000 Acre Feet)

NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT AVERAGE	MEASURED FLOW	
		PERIOD	THIS YEAR		LAST YEAR*	AVERAGE
<u>COLUMBIA RIVER BASIN</u>						
3020	FISHER CREEK Jennings (near)	May-Sept May-July	300 265	129 129	165 151	223 206
3030	KOOTENAI RIVER Libby (at)	May-Sept May-July	9600 8200	129 129	7231 6299	7428 6342
3045	YAAK RIVER Troy (near)	May-Sept May-July	610 580	140 140	429 409	435 413
3050	KOOTENAI RIVER Leonia (at)	May-Sept May-July	10950 9450	130 130	8172 7152	8416 7268
3301	FLINT CREEK Boulder Creek (below) (3)	May-Sept May-July	70.5 55.2	110 110	39.2 27.7	64.1 50.2
3320	MIDDLE FORK ROCK CREEK Philipsburg (near)	May-Sept May-July	88.0 79.3	120 120	39.6 34.9	73.6 66.3
3400	BLACKFOOT RIVER Bonner (near)	May-Sept May-July May-June	1180 1050 8900	129 129 129	589 518 442	914 816 690
3404	CLARK FORK RIVER Milltown (above) (4)	May-Sept May-July May-June	810 695 578	118 118 118	372 305 247	686 589 490
3405	CLARK FORK RIVER Missoula (above)	May-Sept May-July May-June	1990 1745 1468	124 124 124	961 823 689	1600 1405 1180
3425	WEST FORK BITTERROOT RIVER Conner (near) (5)	May-Sept May-July	168 156	107 107	62 57	157 146
3440	BITTERROOT RIVER Darby (near)	May-Sept May-July May-June	550 507 440	106 106 106	232 199 175	518 478 414
3475	BLODGETT CREEK Corvallis (near)	May-Sept May-July	42.0 40.0	105 105	25.7 24.6	39.9 37.9
3528	BITTERROOT RIVER Missoula (at) (6)	May-Sept May-July May-June	1395 1290 1095	101 101 101	681 617 545	1384 1277 1084

(3) Sum, Flint Creek at Maxville and Boulder Creek at Maxville.

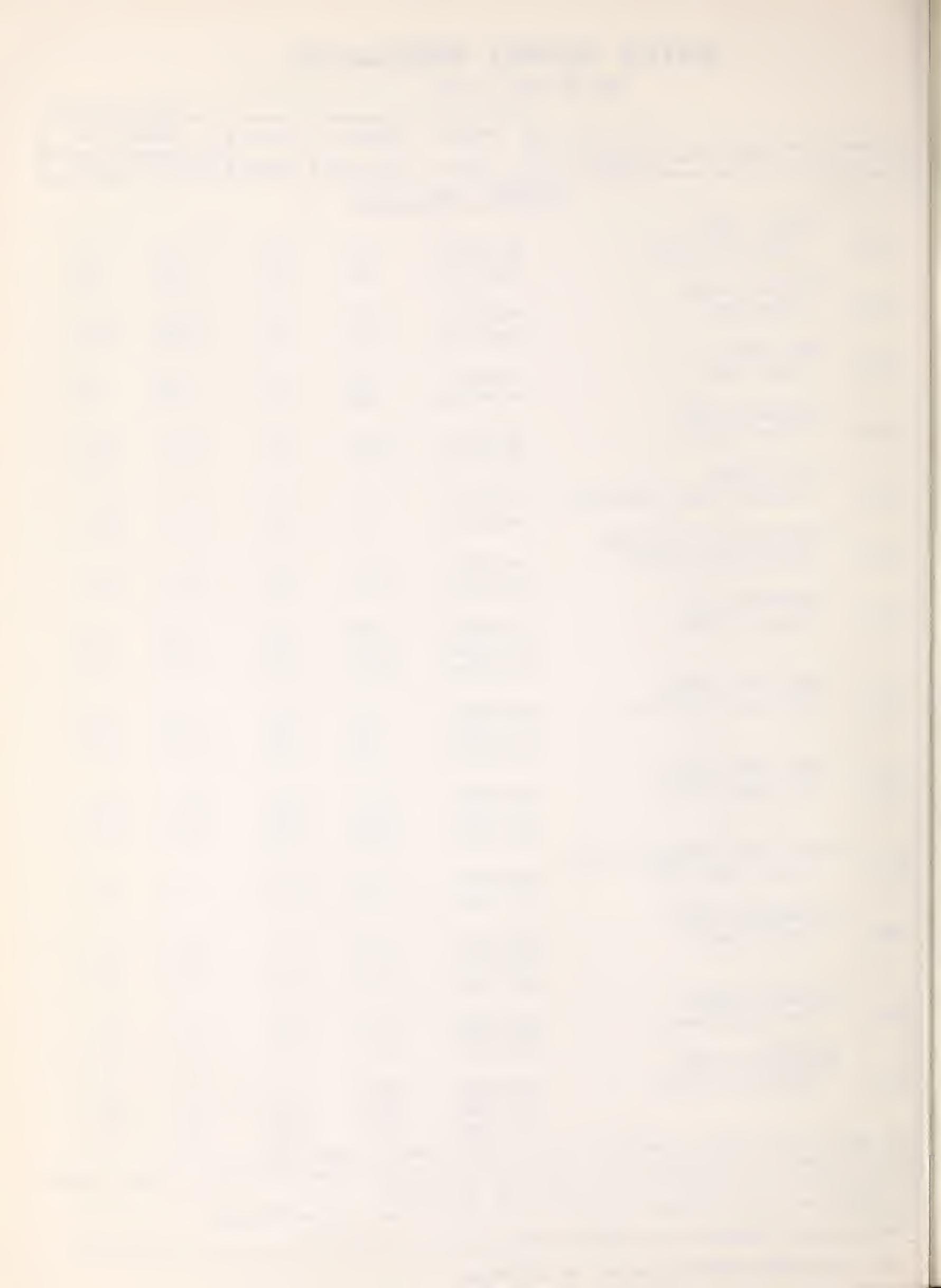
(4) Difference in observed flow, Clark Fork above Missoula and Blackfoot near Bonner.

(5) Adjusted for storage in Painted Rocks Reservoir.

(6) Difference in observed flow, Clark Fork above and below Missoula.

\* PROVISIONAL DATA FURNISHED BY U.S. GEOLOGICAL SURVEY -11-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD).



# WATER SUPPLY FORECASTS

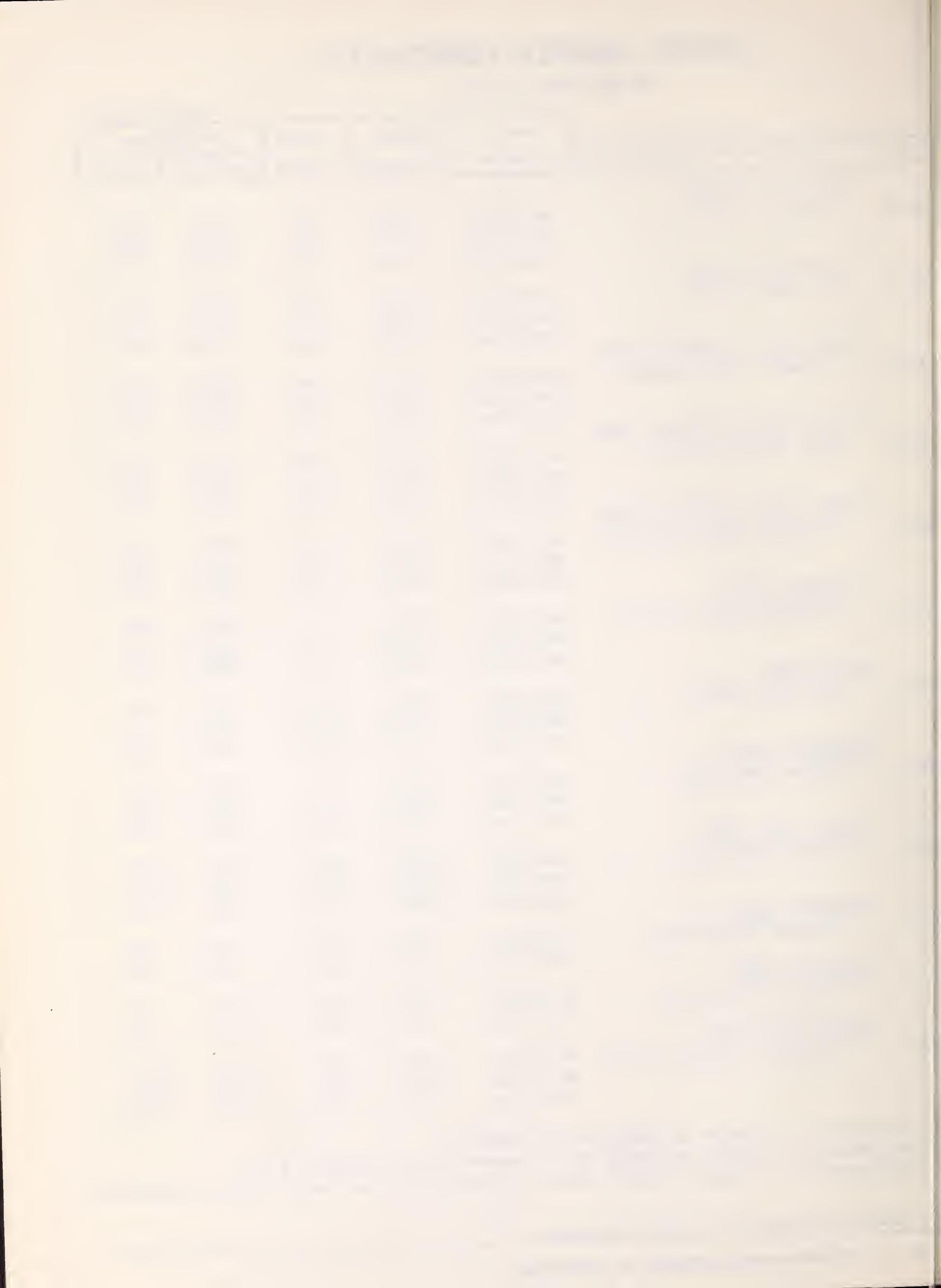
AS OF MAY 1, 1967

NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT AVERAGE	(1000 Acre Feet)	
		PERIOD	THIS YEAR		LAST YEAR*	AVERAGE
<b>CLARK FORK RIVER</b>						
3530	Missoula (below)	May-Sept	3385	113	1642	2984
		May-July	3035	113	1440	2681
		May-June	2563	113	1234	2263
<b>CLARK FORK RIVER</b>						
3545	St. Regis (at)	May-Sept	4445	110	2407	4036
		May-July	4000	110	2110	3624
		May-June	3380	110	1764	3066
<b>NORTH FORK FLATHEAD RIVER</b>						
3555	Columbia Falls (near)	May-Sept	2600	142	1683	1833
		May-July	2350	142	1514	1650
		May-June	1950	142	1257	1371
<b>MIDDLE FORK FLATHEAD RIVER</b>						
3585	West Glacier (near)	May-Sept	2300	132	1547	1736
		May-July	2110	132	1425	1598
		May-June	1760	132	1196	1334
<b>SOUTH FORK FLATHEAD RIVER</b>						
3625	Columbia Falls (near) (7)	May-Sept	2720	129	1723	2103
		May-July	2560	129	1628	1985
		May-June	2210	129	1427	1710
<b>FLATHEAD RIVER</b>						
3630	Columbia Falls (at) (7)	May-Sept	7760	133	4955	5820
		May-July	7150	133	4569	5351
		May-June	6000	133	3886	4507
<b>SWAN RIVER</b>						
3700	Big Fork (near)	May-Sept	800	133	502	599
		May-July	692	133	434	520
		May-June	533	133	338	408
<b>FLATHEAD RIVER</b>						
3720	Polson (near) (8)	May-Sept	9310	134	5949	6914
		May-July	8550	134	5507	6365
		May-June	7150	134	4626	5324
<b>CLARK FORK RIVER</b>						
3890	Plains (near) (8)	May-Sept	14160	126	8463	11286
		May-July	12850	126	7670	10230
		May-June	10950	126	6436	8570
<b>THOMPSON RIVER</b>						
3895	Thompson Falls (near)	May-Sept	280	112	168	249
		May-July	247	112	142	220
<b>PROSPECT CREEK</b>						
3907	Thompson Falls (at)	May-Sept	145	114	90.2	127
		May-July	133	114	81.8	117
<b>CLARK FORK RIVER</b>						
3920	Whitehorse Rapids (at) (9)	May-Sept	15460	123	9516	12580
		May-July	14000	123	8558	11369
		May-June	11750	123	7132	9499

(7) Adjusted for storage in Hungry Horse Reservoir.

(8) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.

(9) Adjusted for storage in Hungry Horse, Flathead Lake and Noxon Rapids Reservoirs.



# WATER SUPPLY FORECASTS

AS OF MAY 1, 1967

(1000 Acre Feet)

NO.	RIVER AND FORECAST POINT	FORECAST	FORECAST	PERCENT AVERAGE	MEASURED FLOW	
		PERIOD	THIS YEAR		LAST YEAR*	AVERAGE
<u>MISSOURI RIVER BASIN</u>						
0110	RED ROCK RIVER Kennedy Ranch (at)	May-Sept May-July	78.0 69.6	157 157	31.3 28.8	49.8 44.3
0125	RED ROCK RIVER Monida (near)(11)	May-Sept May-July	85.0 77.8	155 155	33.5 32.0	54.9 50.2
0195	RUBY RIVER Alder (near)	May-Sept May-July	90.0 73.0	129 129	51.7 42.6	69.9 56.7
0255	BIG HOLE RIVER Melrose (near)	May-Sept May-July	750 690	120 120	217 197	625 576
0330	BOULDER RIVER Boulder (near)	May-Sept May-July	80.0 75.7	120 120	42.8 41.1	66.4 63.2
0345	JEFFERSON RIVER Sappington (at)(12)	May-Sept May-July	1030 905	125 125	198 171	824 725
0375	MADISON RIVER West Yellowstone (near)	May-Sept May-July	218 157	122 122	165 115	179 129
0385	MADISON RIVER Grayling (near)(13)	May-Sept May-July	470 353	129 129	319 227	364 274
0410	MADISON RIVER McAllister (near)(14)	May-Sept May-July	830 640	133 133	516 373	623 481
0435	GALLATIN RIVER Gateway (near)	May-Sept May-July	618 522	148 148	359 299	418 353
0485	BRIDGER CREEK Bozeman (near)	May-Sept May-July	27.0 25.1	164 164	13.5 12.4	16.5 15.3
0500	HYALITE CREEK Bozeman (near)(15)	May-Sept May-July	49.5 42.2	152 152	35.2 30.1	32.6 27.8
0525	GALLATIN RIVER Logan (at)	May-Sept May-July	675 557	169 169	261 204	400 330

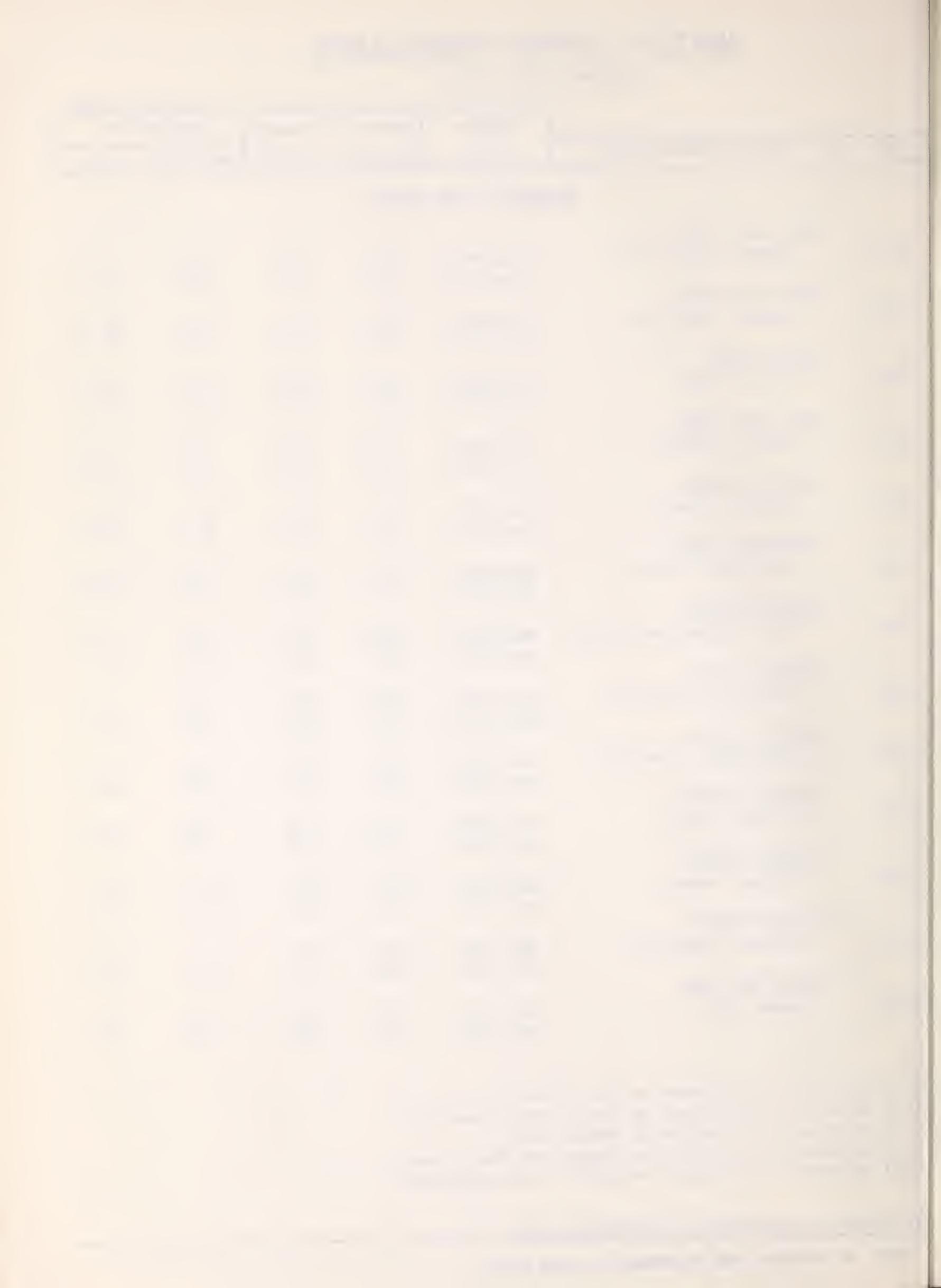
(11) Adjusted for storage in Lima Reservoir.

(12) Adjusted for storage in Clark Canyon Reservoir.

(13) Adjusted for storage in Hebgen Lake.

(14) Adjusted for storage in Hebgen and Ennis Lakes.

(15) Adjusted for storage in Middle Creek Reservoir.



# WATER SUPPLY FORECASTS

AS OF MAY 1, 1967

(1000 Acre Feet)

NO.	RIVER AND FORECAST POINT	FORECAST PERIOD	FORECAST THIS YEAR	PERCENT AVERAGE	MEASURED FLOW	
					LAST YEAR*	AVERAGE
<b>MISSOURI RIVER</b>						
0545	Toston (at)(16)	May-Sept	2450	135	812	1816
		May-July	2060	135	659	1530
<b>PRICKLY PEAR CREEK</b>						
0615	Clancy (near)	May-Sept	24.5	129	12.2	19.0
		May-July	20.7	129	10.3	16.2
<b>SHEEP CREEK</b>						
0770	White Sul. Spgs. (near)	May-Sept	32.0	208	17.3	15.4
		May-July	27.4	208	14.6	13.2
<b>SUN RIVER</b>						
0786	Gibson Dam (at)(17)	May-Sept	690	120	406	573
		May-July	626	120	368	522
<b>MISSOURI RIVER</b>						
0908	Fort Benton (at)(18)	May-Sept	3850	135	1663	2861
		May-July	3100	135	1315	2367
<b>TWO MEDICINE CREEK</b>						
0920	Browning (near)(19)	May-Sept	290	120	170	241
		May-July	275	120	159	229
<b>BADGER CREEK</b>						
0925	Browning (near)	May-Sept	155	117	94	132
		May-July	131	117	79	112
<b>CUT BANK CREEK</b>						
0990	Cut Bank (at)	May-Sept	140	123	77.2	114
		May-July	127	123	69.9	103
<b>MARIAS RIVER</b>						
0995	Shelby (near)(20)	May-Sept	690	122	358	564
		May-July	650	122	330	530
<b>MISSOURI RIVER</b>						
1095	Virgelle (at)(21)	May-Sept	4650	131	2057	3557
		May-July	3830	131	1687	2999
<b>JUDITH RIVER</b>						
1100	Utica (near)	May-Sept	67.0	205		32.7
		May-July	62.0	205		30.2
<b>MISSOURI RIVER</b>						
1150	Zortman (near)(21)	May-Sept	5060	130	2254	3885
		May-July	4240	130	1847	3254
<b>NORTH FORK MUSSELSHELL R.</b>						
1155	Delpine (near)	May-Sept	9.0	180	3.1	5.0
		May-July	7.2	180	2.6	4.0
<b>SOUTH FORK MUSSELSHELL R.</b>						
1185	Martinsdale (above)	May-Sept	70.0	163	37.3	42.8
		May-July	66.4	163	35.7	40.7

(16) Adjusted for storage in Hebgen and Ennis Lakes and Clark Canyon Reservoir.

(17) Adjusted for storage in Gibson Reservoir and diversions.

(18) Adjusted for storage in Canyon Ferry Reservoir.

(19) Adjusted for storage in Two Medicine Res. & diversions into Two Medicine Canal.

(20) Adjusted for storage in Two Medicine, Four Horns, Lake Frances & Swift Res.

(21) Adjusted for storage in Canyon Ferry and Tiber Reservoirs.



# WATER SUPPLY FORECASTS

AS OF MAY 1, 1967

(1000 Acre Feet)

NO.	RIVER AND FORECAST POINT	FORECAST PERIOD	FORECAST	PERCENT AVERAGE	MEASURED FLOW	
			THIS YEAR		LAST YEAR*	AVERAGE
<b>MISSOURI RIVER</b>						
1320	Ft. Peck Dam (below) (22)	May-Sept	4960	133	3728	
		May-July	4260	133	3200	
<b>MILK RIVER</b>						
1350	Eastern Crossing (at)	May-Sept	210	102	230	206
<b>MISSOURI RIVER</b>						
1770	Wolf Point (near) (22)	May-Sept	5200	132	3942	
		May-July	4450	132	3380	
<b>MISSOURI RIVER</b>						
3300	Williston, N.D. (nr) (29)	May-Sept	12000	129	9299	
		May-July	10300	128	8068	

## SASKATCHEWAN RIVER BASIN

<b>ST. MARY RIVER</b>	
0175	Babb (near) (30)
	May-Sept

May-Sept	630	134	468
May-July	538	134	401

- (22) Adjusted for storage in Canyon Ferry, Tiber and Fort Peck Reservoirs.
- (29) Adjusted for storage in Canyon Ferry, Tiber, Fort Peck, Buffalo Bill, Boysen and Yellowtail Reservoirs.
- (30) Adjusted for storage in Lake Sherburne.



# WATER SUPPLY FORECASTS

AS OF MAY 1, 1967

NO.	RIVER AND FORECAST POINT	FORECAST PERIOD	FORECAST THIS YEAR	PERCENT AVERAGE	(1000 Acre Feet)	
					MEASURED FLOW LAST YEAR*	AVERAGE
<u>YELLOWSTONE RIVER BASIN</u>						
	YELLOWSTONE RIVER					
1915	Corwin Springs (at)	May-Sept May-July	217 1800	121 121	1410 1166	1792 1487
	YELLOWSTONE RIVER					
1925	Livingston (near)	May-Sept May-July	2525 2080	125 125	1521 1248	2019 1662
	SHIELDS RIVER					
1935	Clyde Park (at)	May-Sept May-July	135 123	164 164	54.4 52.0	82.1 75.3
	BOULDER RIVER					
2000	Big Timber (at)	May-Sept May-July	470 440	142 142	219 210	330 309
	STILLWATER RIVER					
2050	Absarokee (near) (25)	May-Sept May-July	670 560	126 126	406 333	531 444
	CLARKS FORK RIVER					
2075	Chance (at)	May-Sept May-July	690 620	123 123	412 370	560 504
	CLARKS FORK RIVER					
2085	Edgar (at)	May-Sept May-July	710 625	123 123	405 354	578 507
	ROCK CREEK					
2095	Red Lodge (near)	May-Sept May-July	140 107	139 139	89.2 66.9	101 77.2
	YELLOWSTONE RIVER					
2145	Billings (at)	May-Sept May-July	4800 4100	131 131	2702 2279	3675 3124
	BIG HORN RIVER					
2870	St. Xavier (near) (26)	May-Sept May-July	1680 1560	110 110	569 517	1532 1422
	YELLOWSTONE RIVER					
3090	Miles City (at) (27)	May-Sept May-July	6700 5800	126 126	3169 2216	5307 4609
	YELLOWSTONE RIVER					
3295	Sidney (near) (27)	May-Sept May-July	6700 5720	128 128		5245 4625

(25) Adjusted for storage in Mystic Lake.

(26) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake & Yellowtail Reservoirs.

(27) Adjusted for storage in Buffalo Bill, Boysen and Yellowtail Reservoirs.



# SNOW SURVEY DATA

AS OF MAY 1, 1967

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	(inches)
						LAST YEAR	AVERAGE

## COLUMBIA RIVER BASIN

### KOOTENAI RIVER

15B11	Baree Creek	5500	5/1	149	62.6	41.0	49.1
15B16	Baree Midway	4600	5/1	116	49.9	24.8	-
15B15	Baree Trail	3800	5/1	12	4.2	0.0	-
14A04	Brush Creek	5000	4/26	38	15.0	7.2	10.7*
BC 10	Fernie	3500	4/28	19	6.3	0.3	2.8
BC 12A	Field	4200	4/28	17	5.9	0.0	0.6*
BC 11	Glacier	4100	4/28	94	45.2	31.6	25.9
14A11	Graves Creek	4300	5/2	56	24.0	12.8	-
BC 43	Gray Creek	5100	4/28	76	27.5	21.7	20.2
BC 33	Kicking Horse	5400	4/28	61	21.3	14.0	12.2
BC 20B	Kimberley	3800	4/29	6	1.9	0.0	1.2*
BC 32	Marble Canyon	5000	4/28	44	18.1	8.2	13.4
BC 10B	Morrissey Ridge	6100	4/28	115	39.0	-	-
BC 10A	New Fernie	4100	4/28	46	18.0	-	6.0*
15A01	Red Mountain	6000	4/27	65	27.4	19.6	20.9
BC 8A	Sinclair Pass	4500	4/27	22	7.0	1.6	2.2*
BC 20A	Sullivan Mine	5100	4/27	50	19.8	13.0	12.5
BC 41	Upper Elk River	4400	4/30	13	4.1	0.0	2.5*
14A07	Weasel Divide	5450	5/2	109	50.8	29.6	35.7*

### FLATHEAD RIVER

14B03	Bassoo Peak	5150	5/1	37	13.8	7.8	9.7*
13A11	Beaver Lake	5900	5/4	86	36.4	20.2	-
13B03	Big Creek	6750	5/2	137	61.4	39.6	50.5*
13A17	Camp Misery	6400	4/28	153	66.1	41.0	52.0*
13A02	Desert Mountain	5600	5/1	45	19.7	10.3	14.6
13B04	Fatty Creek	5500	5/2	80	33.7	19.0	22.5*
14A09	Griffin Creek Divide	5150	5/1	39	15.8	3.8	9.8*
13B12	Gunsight Lake	6300	5/4	132	58.5	41.6	-
14A03	Hell Roaring Divide	5770	5/3	95	45.4	29.4	31.5
13B13	Holbrook	4530	5/5	21	9.8	0.0	1.4*
14A05	Logan Creek	4300	4/26	25	8.4	0.0	3.4*
13A05	Marias Pass	5250	4/26	63	25.9	14.0	18.0
13A16	Mineral Creek	4000	5/1	53	23.2	9.4	-
13B07	North Fork Jocko	6330	5/3	136	59.0	36.2	48.0*
13B02	Spotted Bear Mountain	7000	5/5	46	21.6	9.2	12.4*
13B01	Trinkus Lake	6100	5/5	126	61.8	41.4	45.4*
13B11	Twin Creeks	3580	5/5	14	7.2	0.0	1.4*
13B05	Upper Holland Lake	7000	5/5	111	50.6	34.8	39.0*

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). \*ADJUSTED AVERAGE

1990-1991  
Year

1990-1991

1990-1991

1990-1991

1990-1991

1990-1991

1990-1991

# SNOW SURVEY DATA

AS OF MAY 1, 1967

(Inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	AVERAGE
						LAST YEAR	AVERAGE

## CLARK FORK RIVER

13C13	Black Pine	7100	4/27	53	19.7	10.8	11.8*
13C13	Black Pine Pillow	7100	4/27	SP	20.1	11.8	-
12B10	Copper Creek	5700	4/25	46	19.6	4.8	-
12B11	Cotter Mine	6250	4/25	65	28.0	11.8	-
13B10	Coyote Hill	4200				0.4	2.3
13C11	Fred Burr Pass	8000	4/29	99	35.8	20.9	32.5*
14C10	Heart Lake Trail	4800	5/1	63	26.4	14.0	-
15C10	Hoodoo Basin	6000	5/1	147	62.0	-	-
15C10	Hoodoo Basin Pillow	6000	5/1	SP	57.9	-	-
15C01	Hoodoo Creek	5900	5/1	136	57.6	41.2	50.2*
13C04	Intergaard	6450	5/2	50	14.9	2.0	-
15B02	Lookout	5250	5/1	106	42.4	30.0	36.4
13C21	Lubrecht Forest No. 3	5450	4/29	28	7.2	-	3.6*
13C22	Lubrecht Forest No. 4	4650	4/29	3	0.5	-	0.6*
13C08	Lubrecht Forest No. 6	4040	4/29	0	0.0	-	0.1*
13C12	Red Lion	7100	4/29	67	21.5	11.6	19.6*
13C03	Skalkaho Summit	7260	4/27	80	32.2	19.5	26.7*
13C02	Slide Rock Mountain	7100	4/26	53	19.6	12.8	14.7*
13C05	Southern Cross	6500	5/2	39	11.8	-	-
13C18	Spring Gulch	6000	4/30	23	5.8	0.0	3.1*
13C07	Storm Lake	7780	4/29	68	21.6	11.2	17.0*
13C06	Stuart Mill	6500	5/2	42	11.8	-	-
13C01	Stuart Mountain	7400	4/30	95	40.3	28.6	30.4*
14B01	TV Mountain	6800	4/29	61	22.5	17.6	20.3*

## BITTERROOT RIVER

13C16	Ambrose	6480	4/30	60	20.1	8.0	11.0*
13D02	Gibbons Pass	7100	4/27	71	27.2	12.8	23.1
14C05	Lolo Pass	5230	4/27	82	37.0	20.3	31.8*
14C07	Lost Horse	5940	4/28	90	36.8	19.0	34.1*
14D02	Nez Perce Camp	5680	4/26	44	18.0	4.2	9.7
14D01	Nez Perce Pass	6570	4/26	51	20.9	6.0	13.3
13D22	Saddle Mountain	7940	4/27	85	31.6	18.4	-
14C04	Savage Pass	6600	4/27	82	33.2	21.2	-
14C08	Twin Lakes	6510	4/28	117	49.4	29.4	46.6*

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). \*ADJUSTED AVERAGE



# SNOW SURVEY DATA

AS OF MAY 1, 1967

(inches)

SNOW COURSE			CURRENT DATA			PAST RECORD	
NO.	NAME	ELEVATION	DATE OF SURVEY	SNOW DEPTH	WATER CONTENT	WATER CONTENT	
						LAST YEAR	AVERAGE

## MISSOURI RIVER BASIN

### BEAVERHEAD RIVER

13B10	Bloody Dick	7600	5/2	53	16.0	4.6	-
13E22	Dad Creek Lake	8400	4/23	56	18.6	12.0	-
13D15	Elk Horn Springs	7800	4/25	38	11.4	4.9	8.4*
13D09	Gold Stone	8100	5/2	68	22.1	9.9	-
11E04	Lakeview Canyon	6930	4/28	51	19.6	9.7	9.5*
11E03	Lakeview Ridge	7400	4/28	52	18.8	7.6	7.3*
12E01	White Pine Ridge	8850	4/23	26	7.5	0.0	-

### RUBY RIVER

11D08	Clover Meadow	8600	4/23	62	23.6	17.0	-
12E07	Divide	7900	4/23	43	14.2	6.4	-
12E06	Notch	8500	4/23	59	20.5	16.6	-

### BIG HOLE RIVER

13D20	Abundance Lake	8800	4/23	67	24.3	14.8	-
13D19	Darkhorse Lake	8600	4/23	81	32.4	19.2	-
13D21	Foolhen	8280	4/23	65	23.9	11.7	-
13D08	Jahnke Creek	7340	5/2	41	12.4	1.8	-
13D23	Palisade Creek	8450	4/18	88	36.1	-	-

### JEFFERSON RIVER

12C07	Berry Meadow	7300	4/28	50	14.2	5.1	6.7*
12C09	Copper Mountain	7700	5/1	62	18.8	5.9	-
12C10	Nez Perce Creek	6500	5/1	39	11.2	-	-
12C06	Picnic Grounds	6500	5/2	30	8.2	-	-
12D01	Pipesstone Pass	7200	5/3	54	13.8	1.9	4.4*

### MADISON RIVER

11E09	Big Springs	6500	4/28	62	25.5	9.2	-
11D07	Call Road	8050	4/23	47	16.0	11.1	-
11D12	Four Mile	6900	5/1	40	11.3	4.3	-
11E25	Freezeout Lake	7200	4/26	31	10.6	0.8	-
11E26	Freezeout Mountain	8250	4/26	61	24.0	14.0	-
11E05	Hebgen Dam	6550	4/29	34	11.5	0.5	4.8
11E10	Island Park	6315	4/28	45	17.3	2.9	-
11E22	Lake Creek	6100	4/26	17	6.4	0.0	-
11E28	Lion Mountain Pillow	8760	4/25	SP	21.3	-	-
11D11	Lower Twin	7900	5/1	82	26.8	19.4	-
11E23	Meridian Creek	7000	4/26	38	12.2	3.7	-
11D03	North Meadow	7500	5/1	58	14.0	8.4	-

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). \*ADJUSTED AVERAGE



# SNOW SURVEY DATA

AS OF MAY 1, 1967

(inches)

SNOW COURSE			DATE OF SURVEY	CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION		SNOW DEPTH	WATER CONTENT	WATER CONTENT	LAST YEAR

## MADISON RIVER (continued)

10E02	Norris Basin	7500	5/2	41	14.7	0.0	5.5*
11E21	Potomageton Park	7150	4/27	40	17.2	4.9	-
11E20	Sentinel Creek	8300	4/27	79	33.8	18.3	-
11E24	Tepee Creek	8000	4/25	61	21.9	11.5	-
11E27	Upper West Fork	8750	4/25	55	21.8	11.6	-
11E08	Valley View	6500	4/28	62	25.6	7.8	-
11E07	West Yellowstone	6700	4/30	41	15.6	1.4	5.6
11E07	West Yellowstone Pillow	6700	4/28	SP	13.4	-	-

## GALLATIN RIVER

10D14	Arch Falls	7350	5/1	58	18.7	11.6	12.0*
11D09	Bear Basin	8150	4/27	66	27.4	17.2	22.6*
10D15	Bridger Bowl Pillow	7250	4/28	SP	35.2	24.8	-
11E29	Carrot Basin Pillow	9000	4/24	SP	41.5	-	-
10D04	Devil's Slide	8100	5/1	89	30.2	22.2	24.9
10D03	Hood Meadow	6600	5/1	40	13.4	5.2	6.6
10D13	Lick Creek Pillow	6860	4/28	SP	13.0	6.8	-
11D10	Little Park	7400	4/27	54	20.8	13.0	16.0*
10D18	Maynard Creek Pillow	6210	4/28	SP	15.6	-	-
10D16	Shower Falls Pillow	8100	5/1	SP	31.3	25.4	-
11D13	Taylor Peaks Pillow	8500				-	-
11E06	Twenty-One Mile	7150	4/30	66	25.6	12.8	14.9

## MISSOURI RIVER (Main Stem)

11C01	Boulder Mountain	7950	5/1	84	29.5	18.0	16.1*
12C05	Chessman Reservoir	6200	4/26	24	7.8	0.6	2.9
10C09	Deadman Creek	6450	5/3	48	18.8	5.6	-
10C07	Elk Peak	8000	5/2	83	28.7	17.2	16.5*
10C02	Grasshopper	7000	5/2	38	11.1	4.2	-
10C01	Kings Hill	7500	4/28	65	22.9	12.4	13.8
12C01	Stemple Pass	6600	4/27	47	16.0	7.5	9.8
12C02	Ten Mile Lower	6600	4/26	33	11.2	1.8	4.1
12C03	Ten Mile Middle	6800	4/25	48	16.4	7.7	9.9
12C04	Ten Mile Upper	8000	4/25	53	19.9	10.1	14.2

## SUN-TETON-MARIAS RIVERS

13A15	Badger Pass	6900	5/4	120	50.4	37.1	-
12B06	Cabin Creek	5200	5/4	30	13.6	0.0	-
12B09	Five-Bull	5700	5/4	39	13.8	0.5	-
12A01	Freight Creek	6000	5/4	64	26.2	11.8	-
12B07	Goat Mountain	7000	4/30	54	17.0	9.2	10.3*
12B04	Wrong Creek	5700	5/4	47	20.9	9.1	-
12B03	Wrong Ridge	6800	5/4	70	30.1	18.3	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). \*ADJUSTED AVERAGE



# SNOW SURVEY DATA

AS OF MAY 1, 1967

(inches)

SNOW COURSE			DATE OF SURVEY	CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION		SNOW DEPTH	WATER CONTENT	WATER CONTENT	LAST YEAR

## JUDITH RIVER

9C02	Avalanche	7100	5/4	94	33.7	21.7	-
9C01	Crystal Lake	6100	5/4	53	21.4	9.2	-
9C03	Rock Creek	5600	5/4	40	13.9	5.1	-
10C06	Spur Park	8000	5/3	95	36.3	20.4	20.0*
10C06	Spur Park Pillow	8000	5/3	SP	34.6	-	-

## ST. MARY RIVER

13A18	Hudson Bay Divide	5800	5/1	84	29.4	17.5	-
13A03	Iceberg Lake No. 3	5600	5/3	114	51.0	28.3	29.6
13A14	Josephine Lower No. 9	4900	5/2	80	32.8	18.9	17.9*
13A07	Mount Allen No. 7	5700	5/2	150	72.9	47.8	49.2
13A06	Piegan Pass No. 6	5500	5/2	135	59.4	42.6	41.3
13A08	Ptarmigan No. 8	5800	5/3	133	59.8	36.1	40.3

## UPPER YELLOWSTONE RIVER

10C05	Bald Ridge	7500	5/2	49	17.7	10.0	-
9D01	Camp Senia	7890	4/28	36	11.2	7.6	9.3*
10E03	Canyon	7750	4/28	60	24.1	12.8	13.5*
9D07	Cooke Station	8150	5/2	72	28.7	15.5	-
10E06	East Entrance	7000	5/1	15	5.0	0.0	3.6*
9D06	Fisher Creek	9100	5/2	131	54.9	36.5	-
9D06	Fisher Creek Pillow	9100	5/2	SP	53.6	-	-
9D05	Grizzly Peak	8400	5/3	91	22.8	21.6	18.2*
10D06	Independence	8000	4/26	64	26.7	12.9	17.7*
10E04	Lake Camp	7850	4/28	42	13.5	6.0	7.2*
9E01	Lodgepole	8200	5/3	54	16.7	7.6	10.7*
10E01	Lupine Creek	7300	5/1	45	16.6	3.5	7.7*
10D12	Monument Peak	9000	4/26	94	37.8	20.9	26.4*
10D07	Northeast Entrance	7400	5/1	36	13.2	3.2	6.2
10D07	Northeast Entrance Pillow	7350	5/2	SP	13.7	-	-
10C03	Porcupine R.S.	6500	5/2	34	11.3	5.2	-
10D10	Sacajawea	6550	4/28	42	17.9	11.4	10.8*
10C08	South Fork Shields	8100	5/2	85	33.6	26.3	-
10E05	Sylvan Pass	7100	5/1	39	17.0	9.0	10.6*
9D04	Timberline Creek	8850	4/28	60	23.8	16.9	16.7*
9D08	White Mill	8700	5/2	100	40.2	23.9	-

SP - Snow pillow observation - water content only.

NOTE: ALL AVERAGES BASED ON 1948-1962 (15 YEAR PERIOD). \*ADJUSTED AVERAGE



# SOIL MOISTURE DATA

AS OF MAY 1, 1967

(Inches)

SOIL MOISTURE STATION			SOIL PROFILE		CURRENT DATA		PAST RECORD	
NO.	NAME	ELEVATION	DEPTH	FIELD CAPACITY	DATE OF SURVEY	SOIL MOISTURE	LAST YEAR	** AVERAGE

## COLUMBIA RIVER BASIN

### Kootenai

15B15M	Baree Trail	3800	48	7.5	5/1	6.6	7.2	-
14A10M	Murphy Lake R.S.	3000	48	22.6	5/1	22.5	21.4	-
15A02M	Raven R.S.	3050	48	23.0	5/2	22.2	21.8	-

### Flathead

13A02M	Desert Mountain	5600	54	8.4	5/1	8.2	9.6	8.5
13A05M	Marias Pass	5250	54	6.5	5/1	5.8	-	6.0

### Clark Fork

13C13M	Black Pine	7100	48	10.0	4/27	6.6	5.5	-
13C15M	Georgetown Lake	6450	48	9.0	4/29	5.9	7.2	5.8
13B19M	Seeley Lake R.S.	4030	48	11.9	5/2	11.8	11.6	11.8
13C03M	Skalkaho Summit	7260	48	10.8	4/27	9.9	10.4	-

### Bitterroot

13D18M	Gibbons Pass	7100	48	7.1	4/26	4.9	6.2	6.3
14C05M	Lolo Pass	5250	48	10.6	4/27	3.8	7.4	7.4

## MISSOURI RIVER BASIN

### Beaverhead

11E13M	Lakeview	6700	48	15.3	5/2	9.6	15.1	15.2
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### Madison

11D04M	Red Bluff	4800	40	4.7	5/1	2.2	2.3	2.5
11E07M	West Yellowstone	6700	48	6.5	4/28	3.6	-	-

### Gallatin

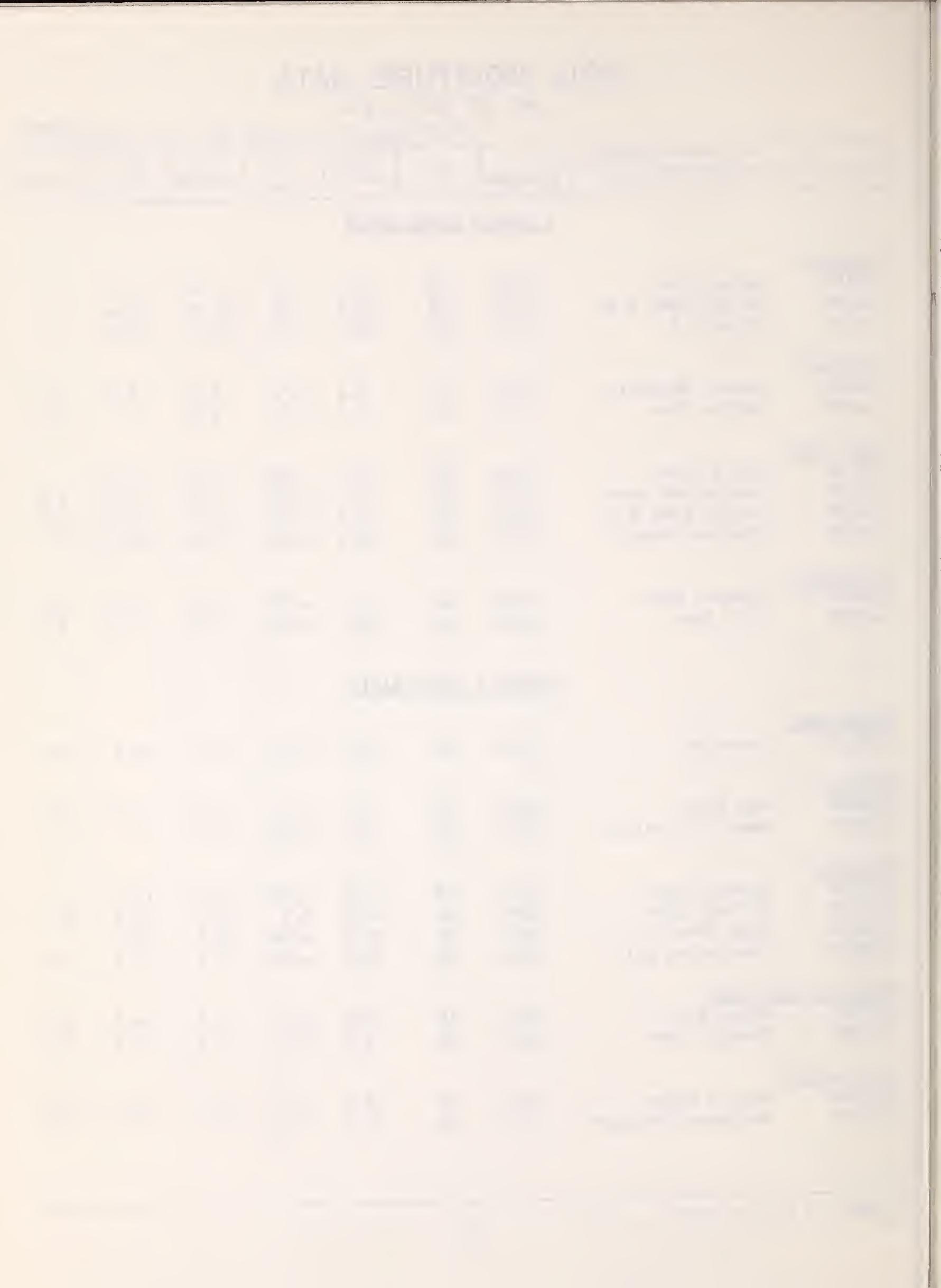
10D15M	Bridger Bowl	7250	48	15.8	4/28	15.8	16.4	-
11D02M	College Site	4856	54	14.5	5/1	14.9	14.8	12.5
10D13M	Lick Creek	6860	48	18.8	4/28	18.9	19.0	-
11E06M	Twenty-One Mile	7150	48	10.0	4/28	2.9	3.4	3.5

### Missouri Main Stem

10C01M	Kings Hill	7420	48	11.8	5/3	4.7	8.8	8.3
12C08M	Stemple Pass	6350	48	5.9	5/1	4.2	5.4	5.5

### Yellowstone

10D11M	Battle Ridge	6020	48	17.6	5/2	15.0	15.6	15.5
10D07M	Northeast Entrance	7350	48	9.4	-	-	-	7.7



# RESERVOIR STORAGE DATA

AS OF APRIL 30, 1967

(1000 Acre Feet)

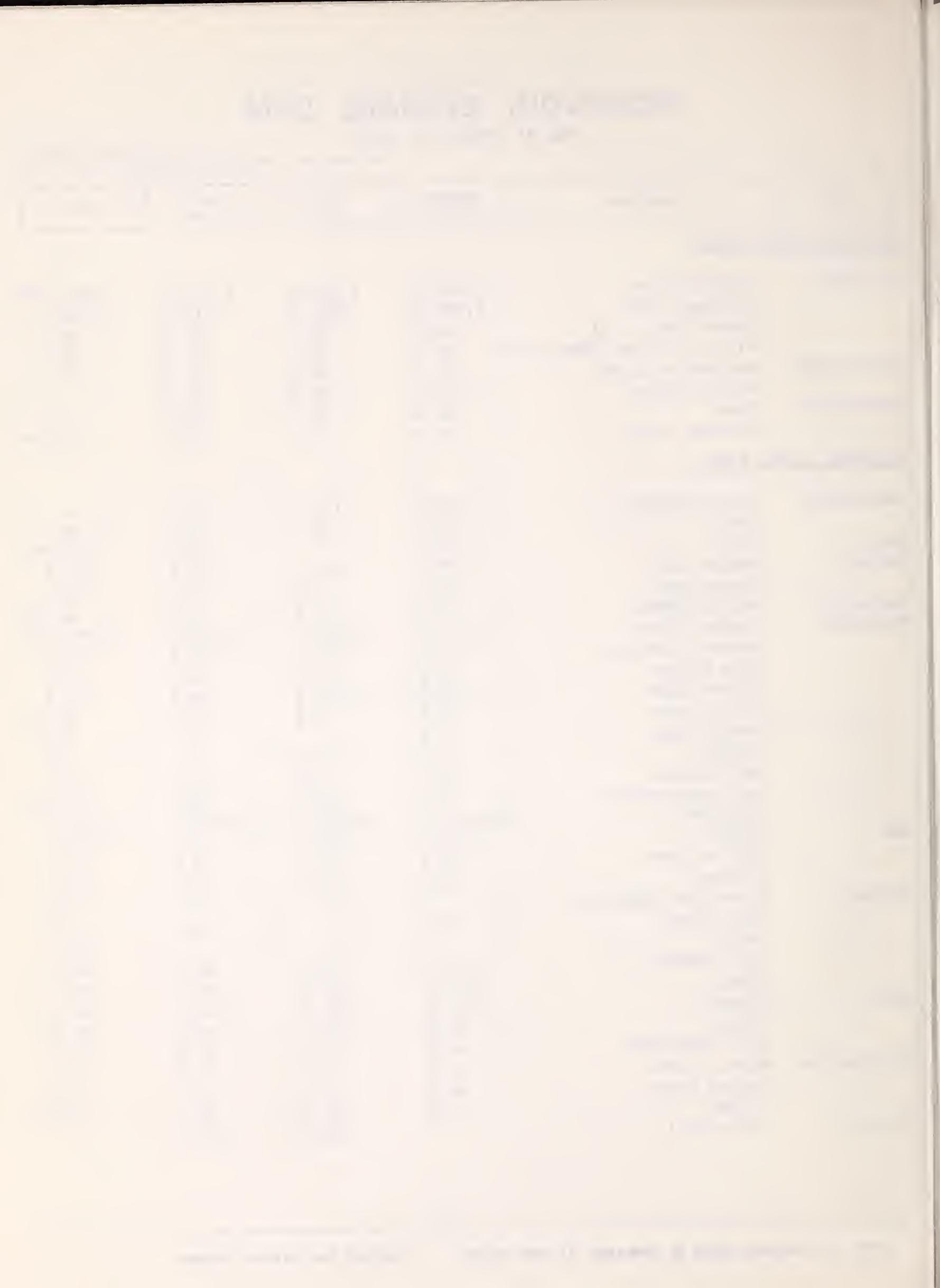
BASIN	RESERVOIR	USEABLE CAPACITY	USEABLE STORAGE		
			THIS YEAR	LAST YEAR	AVERAGE

## COLUMBIA RIVER BASIN

Flathead	Hungry Horse	3,428.0	1,333.0	2,437.0	2,097.0**
	Flathead Lake	1,791.0	816.1	818.5	968.0
	Camas (Sum of 4)	45.2	39.5	35.4	38.1
	Mission Valley (Sum of 8)	100.3	25.5	71.8	45.1
Clark Fork	Georgetown Lake	31.0	18.9	21.6	21.2
	Noxon Rapids	334.6	39.7	95.0	-
Bitterroot	Como	34.9	10.7	20.7	17.9
	Painted Rocks	31.7	16.5	20.5	22.0**

## MISSOURI RIVER BASIN

Beaverhead	Clark Canyon	328.9	120.1	158.1	-
	Lima	84.0	24.6	67.6	48.3
Ruby	Ruby	38.8		36.9	31.7**
Madison	Hebgen Lake	377.5	221.4	266.8	174.8
	Ennis Lake	41.0	38.7	39.0	34.9
Gallatin	Middle Creek	8.0	3.8	3.3	4.6**
Missouri	Canyon Ferry	2,043.0	1,026.0	1,478.0	1,577.4**
	Hauser & Helena	61.9	61.3	62.4	49.9
	Lake Helena	10.4	10.2	10.7	6.6
	Holter Lake	81.9	53.4	78.1	61.8
	Smith River	10.7	7.5	10.8	8.1**
	Ackley Lake	5.8		-	3.6
	Durand	7.0	5.8	7.0	5.9
	Martinsdale	23.1	9.2	16.7	10.6
	Deadman's Basin	72.2	55.9	66.6	45.1**
	Fort Peck	19,410.0	15,860.0	16,700.0	11,128.6
Sun	Gibson	105.0	29.0	74.5	65.7
	Willow Creek	32.3	17.2	26.6	23.4
	Pishkun	32.0	15.7	24.7	22.5
Marias	Lower Two Medicine			-	1.4
	Four Horns	19.2		12.2	10.9
	Swift			-	26.7
	Lake Frances	112.0	75.8	98.9	96.0
	Tiber	1,347.0	437.2	708.6	656.3**
Milk	Fresno	127.2	125.8	128.1	108.1
	Nelson	66.8	58.0	58.9	39.8
	Lake Sherburne	66.1	24.8	25.9	24.8
Yellowstone	Mystic Lake	20.8	4.6	2.0	2.8
	Tongue River	68.0	40.2	49.6	20.0
	Cooney	27.5	15.8	22.6	15.0**
Big Horn	Yellowtail		706.8	363.3	-



## Agencies Cooperating in Collecting Data Contained in this Bulletin

U. S. Forest Service  
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U. S. Geological Survey  
Helena, Montana

U. S. Army Corps of Engineers  
Portland, Oregon  
Seattle, Washington  
Omaha, Nebraska

U. S. Indian Irrigation Service  
St. Ignatius, Montana

U. S. Weather Bureau  
Helena, Montana

U. S. Bureau of Sports Fisheries  
and Wildlife  
Red Rock Lakes Refuge  
Monida, Montana

U. S. Bureau of Reclamation  
Billings, Montana  
Boise, Idaho

U. S. Soil Conservation Service  
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Soil and Water Conservation Districts  
Montana Counties

U. S. Bonneville Power Administration  
Portland, Oregon

U. S. National Park Service  
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Glacier National Park

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domestic and municipal water  
supply, hydro-electric power  
generation, navigation,  
mining and industry

—  
*"The Conservation of Water begins  
with the Snow Survey".*